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Obsah

MAIN ASPECTS OF THE DEVELOPMENT OF THE NUCLEAR INDUSTRY IN THE REPUBLIC OF KAZAKHSTAN

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Abstract: Current geopolitical and economic tensions are forcing the world's economies to reassess their energy complex. For economic stability and energy security, many countries use uranium as a source of energy. The Republic of Kazakhstan is the world leader in this field: in 2022, it produced 43% of the world's uranium and exported 59% of the world's uranium by value. The main importers of uranium from the country are: China, Russia, Canada, France and the USA. To fulfill the stated objective of the paper, namely the characterization of Kazakhstan's position in the uranium market, we implemented a comparison and analysis of statistical data.
Keywords: nuclear industry, Kazakhstan, uranium export, energy security
JEL: F63, O13, Q42

Introduction

The current geopolitical realities, the growth of the world economy,[1] population growth,[2] the environmental crisis, the scarcity of traditional sources of energy and the logistical barriers to their transportation are factors that condition the high pace of development of the nuclear industry. According to the latest projections by the Nuclear Energy Agency (NEA), although fossil fuels such as coal, natural gas and oil are the main sources of energy, the share of uranium in meeting the world's energy demand is projected to grow from 16% in 2008, to 20% in 2030 and to 35% in 2050. The development of the global nuclear industry will also result in an increase in the number of nuclear power plants from the current 436 to 1 000 by 2030.[3] In this context, we can argue that uranium is becoming a strategic product of the global economy and energy security. In this area, the Republic of Kazakhstan demonstrates considerable comparative advantages.

Active support for the development of the nuclear industry can be seen from the Government of the Republic of Kazakhstan. The country's first president, Nursultan Nazarbayev, in Adress to the nation "Kazakhstan's Way - 2050" in 2014, pointed to the prospects for the development of nuclear energy and Kazakhstan's leading position in uranium mining. Already that year, he delegated to the government the task of developing its own nuclear fuel production and the construction of nuclear power plants.[4] Current President Tokayev notes the dependence of the country's energy security and consequently economic stability in its relationship with neighbouring countries. He sees diversification of electricity sources, including uranium, as a solution.[5]

[1] THE WORLD BANK (2023): GDP (constant 2015 US).
[2] UNITED NATIONS (2023): Total population.
[3] NUCLEAR ENERGY AGENCY (2008): Uranium 2007: Resources, Production and Demand, p. 65.
[4] OFFICIAL WEBSITE OF THE PRESIDENT OF THE REPUBLIC OF KAZAKHSTAN (2014): Adress of the President of the Republic of Kazakhstan N. Nazarbayev to the nation.
[5] EĽUBAEVA, A. (2022): Nam pozarez nužna čistaja atomnaja energia – prezident.

The necessity to transform the energy sector in Kazakhstan also stems from the ratification of the Paris Agreement on climate change in 2016.[6] The Green Economy Transition Council under the President of Kazakhstan approves national greenhouse gas emission reduction commitments of 15% of the 1990 baseline by 2023.[7] Nuclear energy is one of the means to realise the stated objective.

The primary purpose of this paper is to characterize the main aspects of the development of the nuclear industry in the Republic of Kazakhstan and to highlight the country's comparative advantages in this segment of the economy. To realize this goal, we compared and analyzed statistical data.

1 Review of the literature

Siddi and Silvan analyse the position of Russia and Kazakhstan in the world uranium market. The authors point out that global uranium supply chains may become more politicized and unpredictable in the future. Countries may use the commodity as a powerful factor in energy diplomacy.[8]

China-Kazakhstan trade relations in the nuclear industry are covered by Yanliang Pan. In the publication, the author concludes that the countries of Asia, Europe and North America are on the threshold of a nuclear renaissance, and China is striving to become an important player in the uranium logistics chain between Kazakhstan and Western markets.[9]

Ulyanin and Boytsov also point to the end of the era of "cheap" uranium. The authors predict that demand for natural uranium could exceed supply from known sources in as little as five to seven years. These trends only underline Kazakhstan's comparative advantages on the international stage.[10]

2 Kazakhstan's position in the world nuclear fuel market

The history of the development of the nuclear industry in Kazakhstan dates back to the post-war period when the country was part of the Soviet Union. In 1951, the first successful geological exploration was carried out, when the first uranium deposit was discovered in the village of Korday, in the Zhambyl region of southern Kazakhstan. In view of the importance and prospects of this sector of the economy, the world's first experimental-industrial fast neutron reactor, BN-350, was launched in Aktau in 1972. At that time, the uranium industry of Kazakhstan was one of the segments of the nuclear military-industrial complex of the Soviet Union under the leadership of the Ministry of Medium Engineering. After the collapse of the USSR, the Republic of Kazakhstan had only two links in the nuclear fuel cycle: uranium mining and fuel pellet production.[11]

In 1991, Nursultan Nazarbayev passed a law to close the Semipalatinsk Test Site, demonstrating to other countries the beginning of the anti-nuclear process in Kazakhstan. The move was historically significant, as 456 nuclear and thermonuclear explosions took place at the site over half a century. The total force of the nuclear charges was 2 500 times greater than

[6] ADILET (2016): O ratifikacii Parižskoho soglašenija.
[7] YESSEKINA, B. (2016): Parižskoje klimatičeskoje soglašenije: osobennosti i perspektivy dľa Respubliki Kazachstan, p. 19.
[8] SIDDI, M. – SILVAN, K. (2023): Russia and Kazakhstan in the global nuclear sector: From uranium mining to energy diplomacy.
[9] PAN, Y. (2024): To Secure To Secure Kazakhstan's Uranium, Chinese Players Were Compelled to Accommodate Local Partners.
[10] ULYANIN, J. – BOJCOV, A. (2022): Mirovaja promyšlennosť: sostojanije i perspektivi, p. 11.
[11] NSK ASSOCIATION (2011): Za 20 let nezavisimosti atomnaja otrasľ stala vizitnoj kartočkoj Kazachstana.

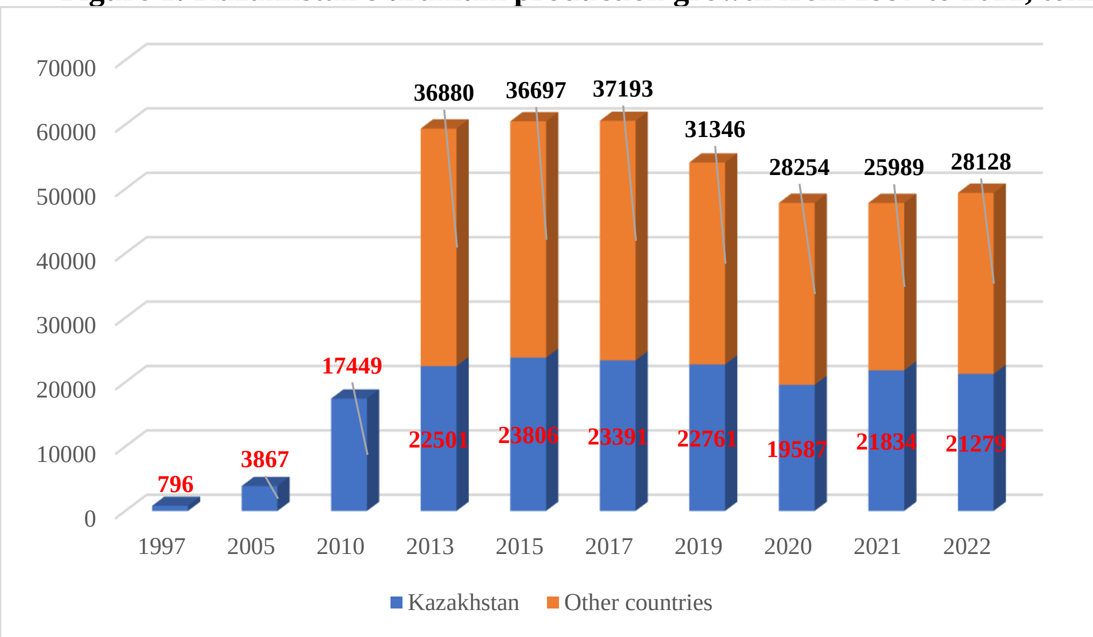
the force of the atomic bomb dropped on the Japanese city of Hiroshima. Kazakhstan thus became the first country in the world to voluntarily renounce nuclear weapons.[12]

Nevertheless, Kazakhstan remains a nuclear country, but the development of the nuclear industry has been redirected to peaceful purposes. Currently, the Republic of Kazakhstan is the second country in the world, after Australia (28%), in terms of uranium reserves. In 2021, its share was 13% of world reserves. Together with Canada, these three countries account for 50% of the world's uranium reserves.[13]

Kazakhstan has maintained its leadership in uranium mining for a long time (Figure 1). In 2022, the country produced 43% of the world's uranium. Kazakhstan is followed in the region by Canada (15%), Namibia (11%), Australia (9%) and Uzbekistan (7%).[14]

According to Kazatomprom, the national company managing the country's nuclear industry, there are 56 explored deposits in the Republic of Kazakhstan, 14 of which are under development and the rest in reserve. Most of the uranium is found in 4 deposits, which are among the ten largest in the world: Inkaya (5% of world reserves), Karatau (Budenovskoye-2) (5%), Yuzhny Inkaya (3%) and Kharasan-1 (3%).[15] Uranium mining in the Republic of Kazakhstan is carried out using the ISR (In-Situ Recovery Mining) method, which, compared to traditional methods, reduces mining costs, has a lower negative impact on the environment and ensures high performance in terms of production and occupational safety.

Figure 1: Kazakhstan's uranium production growth from 1997 to 2022, tonnes



Source: KAZATOMPROM (2024): Our business.

Table 1: Kazakhstan's share in uranium production from 1997 to 2022, in percent

	2013	2015	2017	2019	2020	2021	2022
Kazakhstan	38%	39%	39%	42%	41%	46%	43%
Other countries	62%	61%	61%	58%	59%	54%	57%

Source: KAZATOMPROM (2024): Our business.

[12] GENERALʼNOJE KONSULʼSTVO RESPUBLIKI KAZACHSTAN V KAZANI. (2021): Zakrytije Semipalatinskoho ispytatelʼnoho poligona.
[13] WORLD NUCLEAR ASSOCIATION (2024): Supply of Uranium..
[14] WORLD NUCLEAR ASSOCIATION (2024): Production from mines (tonnes U).
[15] AKAJEVA, Ch. – RENO, A. (2024): Nedra: kto dobyvajet kazachstanskij uran?

The mining industry in Kazakhstan is carried out by 14 companies, but only two of them belong 100% to Kazatomprom - RU-6 and TOO Kazatomprom-SaUran. Canada's Cameco, Russia's Rosatom, Japan's Energy Asia, France's Orano and China's China General Nuclear Power Group are the world's largest uranium producers, which at the same time participate in uranium mining in Kazakhstan in joint ventures with Kazatomprom.[16]

The Russian Federation plays a major role in Kazakhstan's mining industry. Six of the 12 companies with shareholdings belong either directly to the parent company Rosatom or to its subsidiaries such as Uranium One. Rosatom mines uranium from five of Kazakhstan's 14 uranium deposits. In 2022, Kazatomprom accounted for 23% of the world's mined uranium, with Russia's Rosatom in second place with a 14% share.[17]

Alzhanov sees the provision of uranium assets to the Russian Federation as a failure of the government and as making Kazakhstan even more politically and economically dependent. He speaks of Russia's domination of the uranium mining market in Kazakhstan and the consequent loss of part of its sovereignty.[18]

The close ties between Kazakhstan and the Russian Federation in the nuclear industry must be taken into account by Western countries in the sphere of energy partnership with Astana. Even though Kazakhstan is a reliable trading partner and adheres to the principle of diversification in international relations, it remains highly vulnerable to pressure from the Russian Federation.

3 Territorial structure of uranium exports from Kazakhstan

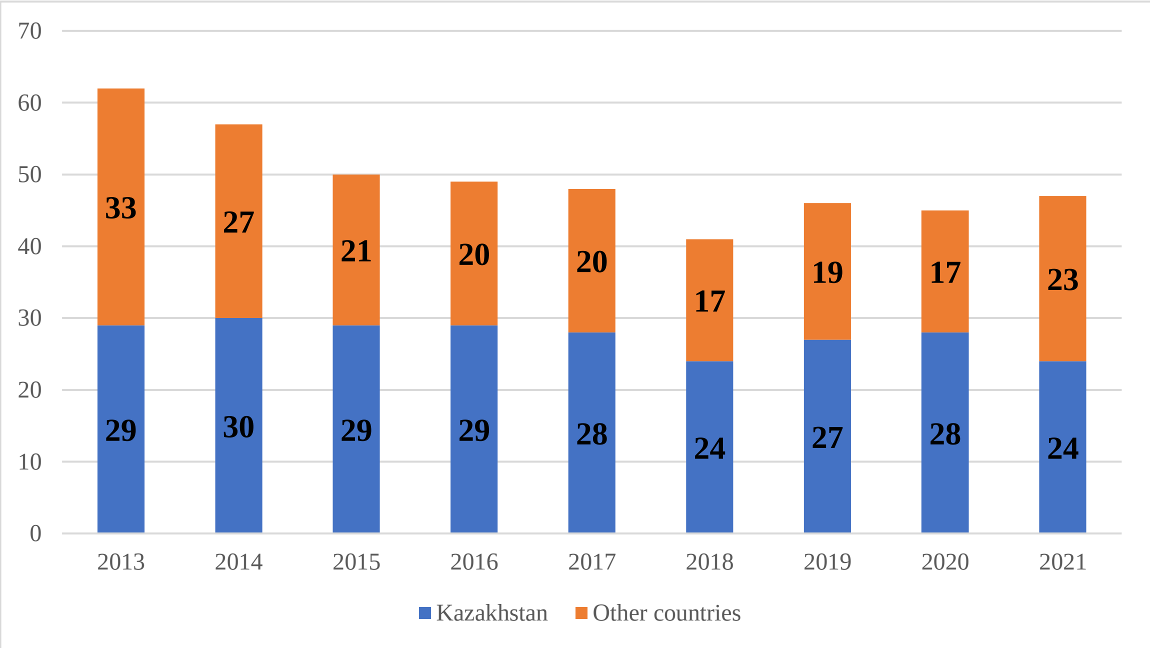
The state-owned company Kazatomprom is Kazakhstan's national operator for the import and export of uranium, rare metals and nuclear fuel for nuclear power plants. The company consists of a complex of enterprises carrying out geological exploration, uranium mining, production of nuclear fuel cycle products, scientific research and training of qualified specialists. Despite the abundance of activities in the nuclear industry, the Republic of Kazakhstan does not provide uranium enrichment and nuclear energy production, focusing on the extraction and export of the chemical element.

[16] Ibid.

[17] ROSATOM (2022): Itogi dejateľnosti goskorporacii Rosatom, p. 43.

[18] CHAIRGEĽDIN, D. – OSPANOV, G. (2023): Kak samoje krupnoje mestoroždenije urana v Kazachstane perešlo pod kontroľ Rosatoma.

Figure 2: Trends in uranium exports from Kazakhstan and other countries, 2017-2021, thousand tonnes



Source: International Trade Centre (2023): Trade statistics.

The graphical representation of the dynamics of uranium exports abroad shows the leading position of the Republic of Kazakhstan and its significant position on the international market of the commodity. The country accounts for a larger share of uranium exports, over the whole period under review, than the other exporters combined. In 2022, Kazakhstan exported 59% of uranium by value. Canada was the world's second largest exporter in that year, exporting 30% of uranium. France accounted for 8% of world exports and the US - 2.4%.[19] As with both production and exports, the territorial diversification of the entities supplying the world's needs in uranium as a nuclear fuel is absolutely low. A similar tendency highlights the fragility of the sector and its monopolistic characteristics.

Figure 3: Territorial structure of Kazakhstan's exports in 2017

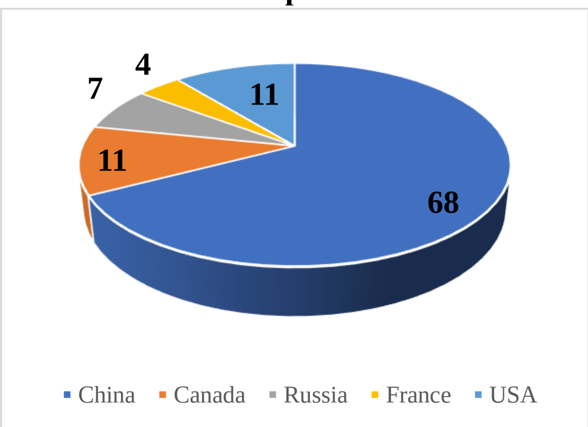
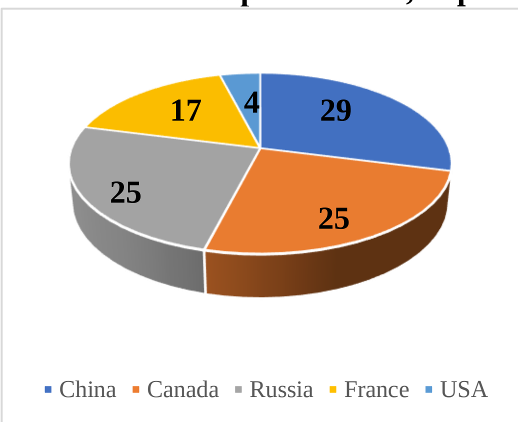


Figure 4: Territorial structure of Kazakhstan's export in 2021, in percent



Source: International Trade Centre (2023): Trade statistics.

[19] STATISTA (2022): Distribution of uranium exports worldwide in 2022 by country.

As we can see in Figure 3, in 2017 China was the main importer of uranium from Kazakhstan, its share amounted to 68% of total exports or 19 thousand tonnes. In 2021, exports to China dropped to 7 thousand tons, which accounted for 29% of total exports. Despite the short-term decline in exports, China and Kazakhstan are important trading partners in the nuclear industry. The growing trend of nuclear power plant construction in China, which is the world's second largest nuclear power producer, correlates with the growth of uranium mining in the country itself and its exports. In 2023, Kazakhstan was China's main uranium exporter, accounting for more than 65% of the country's total imports.[20]

Also on the chart we can observe the growth of uranium exports from Kazakhstan to such countries as Canada, Russia, France and the USA. In addition, the government of Kazakhstan is seeking to increase the number of uranium importers, and so in 2023 Kazatomprom signed the first-ever agreement with the Emirates Nuclear Energy Corporation to import natural uranium concentrate for the energy needs of the Baraka nuclear power plant in the United Arab Emirates.[21]

The war in Ukraine has had some impact on Kazakhstan's uranium sector. On the one hand, business as usual with Russia continues: in May 2023 Rosatom acquired a 49% stake in the Budenovskoye mine, which is set to become the world's largest source of uranium. On the other hand, the Kazakh government is trying to find new export routes that would allow it to reach world markets while bypassing Russian territory. The Trans-Caspian International Transport Route (TITR), which passes through Azerbaijan, Georgia and Turkey, could be a suitable alternative for uranium transit to the West. This transport route has been used by Kazatom to deliver natural uranium to Canada in the autumn of 2022.[22] This may indicate that Astana, despite possible further sanctions against the Russian Federation in the nuclear sector, will be a reliable partner for Western countries in the region.

Since the outbreak of war in Ukraine, an intensification of cooperation between the Republic of Kazakhstan and China can be observed. According to Kazatomprom's annual report, in 2023 China was a key consumer and importer of Kazakh uranium. This year, the two countries, represented by Kazatomprom and China National Uranium Corporation Limited, signed a strategic agreement on the supply of natural uranium. However, the companies do not disclose the volumes of the exports in question as they consider them commercially sensitive.[23]

Paul Goble points to growing competition from world powers over uranium imports from the Republic of Kazakhstan. Since Kazakhstan is unable to increase uranium exports to one country to meet its growing consumption without reducing exports to the other country in the short term, this could trigger geopolitical tensions and even conflict.[24]

Conclusion

Kazakhstan's nuclear industry demonstrates the country's leadership in the international market. Kazakhstan is the country with the second largest uranium reserves and is the leader in the export of the commodity. On the one hand, this causes an increase in the country's competitiveness and comparative advantages in the international arena, but on the other hand, it increases the dependence of the country's economy on the export not only of fossil fuels, but also of uranium.

[20] PAN, Y. (2024): To Secure To Secure Kazakhstan’s Uranium, Chinese Players Were Compelled to Accommodate Local Partners.
[21] KAZATOMPROM (2023): Kazatomprom signs a contract with Emirates Nuclear Energy Corporation for the supply of natural uranium concentrates.
[22] SIDDI, M. – SILVAN, K. (2023): Russia and Kazakhstan in the global nuclear sector: From uranium mining to energy diplomacy.
[23] MAMYSHEV, ZH. (2023): Kazatomprom dogovorilsa od exporte urana v Kitaj.
[24] GOBLE, P. (2023): Kazakhstan’s Uranium Exacerbating Geopolitical Conflict in Eurasia.

It is also noteworthy that, despite a long history in the nuclear industry and substantial uranium reserves, the country does not have a nuclear power plant. Nevertheless, the subject is extremely topical in the country at government and society-wide level. The President points out that the issue is a matter of principle for the country's energy security. The main partners for the technological provision of the construction of the nuclear power plant are also listed: China (CNNC), Russia (Rosatom), South Korea (KHNP) and France (EDF).[25] At the same time, the final decision on the construction of the nuclear power plant will be taken on the basis of a national referendum.[26] We see this development as another step forward for Kazakhstan's nuclear industry and for ensuring the stability of the country's energy sector.

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EUROPEAN UNION IMPLEMENTATION AND ENFORCEMENT OF RESTRICTIVE MEASURES

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Abstract: This paper deals with the European Union's restrictive measures as an instrument of its Common Foreign and Security Policy. It aims to identify and analyse the obstacles to the proper implementation and enforcement of EU restrictive measures by Member States and to present two new EU directives, adopted in April 2024, which may improve this situation. The first concerns the harmonisation of criminal offences and penalties for the violation of EU sanctions. The second aims to strengthen the EU's powers of recovery and confiscation of assets.
Keywords: European Union, restrictive measures, implementation, enforcement
JEL: K33, K14

Introduction

In recent years, the European Union (EU/ Union) has increasingly used restrictive measures (sanctions) as one of the coercive instruments of the Common Foreign and Security Policy (CFSP). They play an important role in responding to military conflicts, nuclear proliferation, terrorism and other foreign policy crises. EU sanctions are the responsibility of the Member States, but there is no common approach to their implementation and enforcement. For this reason, EU sanctions policy often fails to achieve the expected effects. The main objective of this paper is therefore to identify and analyse the problems associated with the implementation and enforcement of EU restrictive measures and the initiatives to address them in the context of recent developments. The research method used in this article is a qualitative one, using primary data sources obtained directly from official EU websites and secondary data in the form of a literature review.

1 Introduction to EU restrictive measures

International sanctions are a legal means of coercion applied against a subject of international law who, by its acts or omissions, has violated its international legal obligation. It should be emphasised that the State's right to legal countermeasures, and thus to redress against a State that has violated an international obligation and committed an international illegal act, is a fundamental right of the given State.[1] In the EU, we use the term restrictive measures, which we consider to be one of the instruments of the CFSP that the Union uses to further the objectives of this policy under Article 21 of the Treaty on European Union (TEU)[2] in the form of coercion. The context in which the Union imposes sanctions can therefore be very diverse (e.g. the protection of EU values, the maintenance of international peace and security, as well as the consolidation and promotion of democracy, the rule of law and human rights), and they often send a clear signal of the EU's disapproval of a particular foreign policy issue.

[1] PYTEĽOVÁ, K. (2009): Právne následky porušenia záväzkov medzinárodného práva – protiopatrenia štátov a sankcie medzinárodných organizácií, pp. 202-208.
[2] EUROPEAN UNION (2016): Consolidated version of the Treaty on European Union.

In terms of content, EU restrictive measures can take the form of sectoral measures (arms embargoes, economic and financial measures), targeted financial sanctions (asset freezes) or entry restrictions (travel bans). The EU does not have military instruments, but it does have significant instruments, particularly economic ones, and can thus influence the behaviour of actors on the international scene by threatening or imposing economic and financial sanctions. In terms of personal scope, EU restrictive measures can be imposed against government of third countries, non-State entities and individuals (such as terrorist groups and terrorists) responsible for the policies or actions that prompted the EU decision to impose sanctions.[3]

From a legal point of view, the Council first adopts unanimously a CFSP decision under Article 29 TEU.[4] The measures set out in this Council decision are implemented either at EU level or at national level. Measures such as arms embargoes or entry restrictions are implemented directly by the Member States. Other measures of an economic or financial nature involving the partial or total interruption or reduction of economic relations with a third country, including the freezing of funds and economic resources, must be implemented by means of a regulation adopted in accordance with Article 215 of the Treaty on the Functioning of the European Union (TFEU)[5] by the Council acting by qualified majority.[6] This two-step decision-making process leading to the adoption of sanctions is a unique cross-pillar mechanism in the EU machinery. It was introduced to bridge the gap between the Union's external trade competence and the Member States' foreign policy prerogatives.[7]

The increased use of sanctions by the EU occurred in the 1990s as a result of the institutionalisation of the CFSP. The EU currently has more than 40 sets of restrictive measures in place[8] under three sanctions regimes, depending on whether they are imposed by the EU to implement United Nations (UN) Security Council resolutions (under Chapter VII of the UN Charter) or on its own initiative. EU sanctions regimes can be fully autonomous (e.g. against Syria, Venezuela, Russia) or build on UN Security Council sanctions in order to apply more restrictive measures (mixed sanctions regimes, e.g. against North Korea).[9] In recent years, the EU has stepped up the adoption of autonomous restrictive measures with significant economic impact that go beyond UN Security Council sanctions. These trends are precisely linked to the EU's efforts to promote its values in its external relations. The vast majority of EU sanctions regimes apply to specific third countries, the number of which has increased over the years. In addition to geographical regimes, the Union has also begun to use thematic regimes with a horizontal and global scope to pursue CFSP objectives, namely restrictive measures against terrorism,[10] the proliferation and use of chemical weapons,[11] cyber-attacks[12] and human rights violations.[13]

[3] EUROJUST. (2021): Prosecution of sanctions (restrictive measures) violations in national jurisdictions: A comparative analysis, p. 11.
[4] EUROPEAN UNION. (2016): Consolidated version of the Treaty on European Union.
[5] EUROPEAN UNION. (2016): Consolidated version of the Treaty on the Functioning of the European Union.
[6] COUNCIL OF THE EU. (2018): Guidelines on implementation and evaluation of restrictive measures (sanctions) in the framework of the EU Common Foreign and Security Policy, p. 6.
[7] PORTELA, C. (2022): The Changing Nature of CFSP Sanctions: Evolution and Assessment, p. 77.
[8] Based on data from EU Sanctions map (www.sanctionsmap.eu).
[9] EUROJUST (2021): Prosecution of sanctions (restrictive measures) violations in national jurisdictions: A comparative analysis, p. 9.
[10] Council Common Position of 27 December 2001 on the application of specific measures to combat terrorism (2001/931/CFSP).
[11] COUNCIL DECISION (CFSP) 2018/1544 of 15 December 2018 concerning restrictive measures against the proliferation and use of chemical weapons.
[12] COUNCIL DECISION (CFSP) 2019/797 of 17 May 2019 concerning restrictive measures against cyber-attacks threatening the Union or its Member States.
[13] COUNCIL DECISION (CFSP) 2020/1999 of 7 December 2020 concerning restrictive measures against serious human rights violations and abuses.

2 Obstacles to the proper implementation and enforcement of EU restrictive measures

The implementation and enforcement of EU sanctions is devolved to national Member States. This issue has received less attention than the issues surrounding their adoption and their impact on the targets. However, the increasing use of restrictive measures by the EU has raised the political and economic costs for Member States.[14] Portela explains that initially CFSP sanctions were not very visible because most measures did not affect the economy as a whole, neither that of the EU nor that of the target country. They consisted mainly of arms embargoes, visa bans and asset freezes on a few individuals. However, CFSP sanctions policy took a qualitative leap in 2010 when the EU started to impose economic sanctions. For example, the EU agreed sanctions against Iran, complementing UN measures, including an oil embargo and wide-ranging financial restrictions, which also affected European companies and hit some sectors hard.[15] As a result, more attention is being paid to the implementation and enforcement aspect of EU sanctions policy.

Member States are bound by the Guidelines on implementation and evaluation of restrictive measures (sanctions) in the framework of the EU Common Foreign and Security Policy (adopted in 2003 and updated in 2018),[16] EU Best Practices for the effective implementation of restrictive measures (adopted in 2015 and updated in 2022)[17] and Basic Principles on the Use of Restrictive Measures (Sanctions) (adopted in 2004).[18] These documents attempt to address the challenge of reducing the divergent practices that characterize the implementation of sanctions, but there still exists significant potential for uneven transposition.[19] As a result, the implementation and enforcement of restrictive measures vary across the EU. The European Commission argues, that "this creates distortions in the Single Market as EU companies, including EU subsidiaries of foreign companies, can circumvent prohibitions. This also creates uncertainty among operators."[20] Past practice shows a number of shortcomings that cause problems in the implementation and enforcement of EU sanctions.

Firstly, there are diverging implementation processes and uneven interpretations across EU Member States. The European Parliament study notes, that Member States have widely different sanctions implementation systems and "the various numbers and types of national competent authorities engaged in 27 different domestic contexts make it difficult for EU economic operators, particularly when working across the Union, to seek the correct legal guidance and licences under each EU sanctions regime."[21] Competent authorities include in particular the Ministry of Defence, Ministry of Economy, Ministry of Finance, Ministry of Foreign Affairs, customs authorities and central banks.[22] Furthermore, in the context of the implementation of the sanctions against Russia, "quickly adopting a series of very extensive sanctions packages meant that certain legal acts and provisions were open to different interpretations among national competent authorities, ranging from specific terms (such as

[14] PORTELA, C. – OLSEN, K. B. (2023): Implementation and monitoring of the EU sanctions' regimes, including recommendations to reinforce the EU's capacities to implement and monitor sanctions, p. 1.

[15] PORTELA, C. (2022): The Changing Nature of CFSP Sanctions: Evolution and Assessment, p. 75.

[16] COUNCIL OF THE EU (2018): Guidelines on implementation and evaluation of restrictive measures (sanctions) in the framework of the EU Common Foreign and Security Policy.

[17] COUNCIL OF THE EU (2022): EU Best Practices for the effective implementation of restrictive measures.

[18] COUNCIL OF THE EU (2004): Basic Principles on the Use of Restrictive Measures (Sanctions).

[19] GIUMELLI, F. – GEELHOED, W. – VRIES, M. – MOLESINI, A. (2022): United in Diversity? A Study on the Implementation of Sanctions in the European Union, p. 38.

[20] EUROPEAN COMMISSION (2021): COMMUNICATION: The European economic and financial system: fostering openness, strength and resilience, p. 16.

[21] PORTELA, C. – OLSEN, K. B. (2023): Implementation and monitoring of the EU sanctions' regimes, including recommendations to reinforce the EU's capacities to implement and monitor sanctions, p. 51.

[22] GIUMELLI, F. – GEELHOED, W. – VRIES, M. – MOLESINI, A. (2022): United in Diversity? A Study on the Implementation of Sanctions in the European Union, p. 41.

transit and import) to the broader consequences of given measures, namely what constitutes ownership and control in relation to a listed individual."[23] As a result, dissimilar implementation systems lead to inconsistencies in Member States' legal interpretations of key sanctions provisions.

Secondly, there is the lack of EU-level harmonisation in judicial sanctions enforcement and unequal penalisation of sanctions violations across Member States. National systems vary considerably as regards the criminalisation of the violation of EU law on restrictive measures. It can be considered as a criminal offence only (12 Member States), as an administrative or criminal offence depending on the fulfilment of certain criteria (13 Member States) or as an administrative offence only (2 Member States). Penalty systems also vary considerably from one Member State to another. This concerns both the maximum length of imprisonment and the maximum fine that can be imposed.[24] Moreover, only 14 Member States provide for criminal liability of legal persons for violation of Union restrictive measures. [25] The current rules allow individuals and companies to operate and trade in the Member State with the lowest standard of implementation and enforcement of EU restrictive measures.[26] If a Member State had failed to adopt the necessary implementing legislation laying down sanctions for breaches of restrictive measures, the European Commission could have opened an infringement procedure under Articles 258-260 TFEU,[27] but this never happened. This suggests that Member States' implementation discretion was largely respected.[28] It was only with the adoption of sanctions against Russia in 2022 that differences in national implementation of restrictive measures became problematic. In response, the European Commission proposed to classify violations of sanctions as Euro crime under Article 83 (1) TFEU.[29]

Thirdly, Council decisions and regulations on restrictive measures generally contain an anti-circumvention clause prohibiting the knowing and intentional participation in activities which seek to circumvent the restrictive measures in question.[30] However, the increasing adoption of EU restrictive measures has led to the development of systems for circumventing them. "This includes the role of third-party States or groups which engage in activities that help a State under sanctions either to cushion their effects or obviate them entirely."[31] Circumvention by EU-based individuals and entities, often involving public and private actors from third countries, undermines not only the effectiveness of EU sanctions, but also their legitimacy.[32] The EU is therefore discussing a new horizontal sanctions regime to combat circumvention.[33]

The above problems hinder the consistent application of EU sanctions policy and ultimately undermine the effectiveness of restrictive measures and the EU's ability to speak

[23] PORTELA, C. – OLSEN, K. B. (2023): Implementation and monitoring of the EU sanctions' regimes, including recommendations to reinforce the EU's capacities to implement and monitor sanctions, p. 28.
[24] EUROJUST (2021): Prosecution of sanctions (restrictive measures) violations in national jurisdictions: A comparative analysis, pp. 22-24.
[25] EUROPEAN COMMISSION (2022): Proposal for a Directive of the European Parliament and of the Council on the definition of criminal offences and penalties for the violation of Union restrictive measures, p. 3.
[26] PORTELA, C. – OLSEN, K. B. (2023): Implementation and monitoring of the EU sanctions' regimes, including recommendations to reinforce the EU's capacities to implement and monitor sanctions, p. 41.
[27] EUROPEAN UNION (2016): Consolidated version of the Treaty on the Functioning of the European Union.
[28] PORTELA, C. (2022): The Changing Nature of CFSP Sanctions: Evolution and Assessment, pp. 78-79.
[29] EUROPEAN UNION (2016): Consolidated version of the Treaty on the Functioning of the European Union.
[30] EUROPEAN COMMISSION (2022): Proposal for a Directive of the European Parliament and of the Council on the definition of criminal offences and penalties for the violation of Union restrictive measures, p. 2.
[31] PORTELA, C. – OLSEN, K. B. (2023): Implementation and monitoring of the EU sanctions' regimes, including recommendations to reinforce the EU's capacities to implement and monitor sanctions, p. 45.
[32] PORTELA, C. – OLSEN, K. B. (2023): Implementation and monitoring of the EU sanctions' regimes, including recommendations to reinforce the EU's capacities to implement and monitor sanctions, p. 2.
[33] PORTELA, C. – OLSEN, K. B. (2023): Implementation and monitoring of the EU sanctions' regimes, including recommendations to reinforce the EU's capacities to implement and monitor sanctions, p. 52.

with one voice. The current context of international relations, in particular the conflict between Russia and Ukraine, has prompted reflection on the need to reform the EU's sanctions policy, focusing on its implementation and enforcement.[34] Obstacles in this area and the need for reform have been highlighted, for example, in the European Commission's Communication[35] and the European Parliament's study.[36] In December 2023, the EU reached political agreement on two new initiatives that will contribute to the enforcement of EU sanctions. The first concerns the harmonisation of criminal offences and penalties for the violation of EU sanctions and the second aims to strengthen the EU's powers of recovery and confiscation of assets. These efforts have led to the adoption of a two new Directives of the European Parliament and of the Council in April 2024, which has the potential to be of enormous benefit to EU sanctions policy.

3 New EU initiatives

The first directive [Directive (EU) 2024/1226][37] criminalises the violation and circumvention of EU sanctions by introducing common standards and minimum sanctions for violations, thereby facilitating the investigation and prosecution of sanctions violations. The most evident outcome is the criminalisation of sanctions violations as a Euro crime under Article 83 (1) of the TFEU.[38,39] Once the directive enters into force, Member States must transpose its provisions into national law by 20 May 2025 [Article 20(1)].

Under the directive, the following conduct constitutes a criminal offence when committed intentionally and in violation of EU restrictive measures or a national provision implementing EU restrictive measures:

- making funds or economic resources available to designated persons;
- failing to freeze funds or economic resources belonging to, or owned, held or controlled by, designated persons;
- enabling designated persons to enter or transit through the territory of a Member State;
- entering into or continuing transactions with a third State or with entities or bodies owned or controlled by a third State or its agencies, including the award or continuation of public contracts or concessions, where such transactions are prohibited or restricted;
- trade in goods or services the import, export, sale, purchase, transfer, transit or transport of which is prohibited or restricted;
- providing services, financial services or financial activities that are prohibited or restricted [Article 3 (1)].

The circumvention of EU restrictive measures should also be considered a criminal offence [Article 3 (1) (h)].

The directive allows Member States to determine whether certain conduct involving funds, economic resources, goods, services, transactions or activities with a value of less than EUR 10 000 is to be considered a criminal offence [Article 3 (2)].

[34] EUROPEAN COMMISSION (2022): Proposal for a Directive of the European Parliament and of the Council on the definition of criminal offences and penalties for the violation of Union restrictive measures.
[35] EUROPEAN COMMISSION (2021): COMMUNICATION: The European economic and financial system: fostering openness, strength and resilience.
[36] PORTELA, C. – OLSEN, K. B. (2023): Implementation and monitoring of the EU sanctions' regimes, including recommendations to reinforce the EU's capacities to implement and monitor sanctions.
[37] Directive (EU) 2024/1226 of the European Parliament and of the Council of 24 April 2024 on the definition of criminal offences and penalties for the violation of Union restrictive measures and amending Directive (EU) 2018/1673.
[38] EUROPEAN UNION (2016): Consolidated version of the Treaty on the Functioning of the European Union.
[39] PORTELA, C. – OLSEN, K. B. (2023): Implementation and monitoring of the EU sanctions' regimes, including recommendations to reinforce the EU's capacities to implement and monitor sanctions, p. 41.

The directive has created consistency in penalties across Member States by establishing a common basic standard for penalties. It also requires Member States to provide a criminal response to the violation of EU restrictive measures against both natural and legal persons.

Criminal offences committed by natural persons are punishable in all EU Member States, depending on the offence, by terms of imprisonment ranging from at least one year to up to five years, as well as by fines and non-criminal penalties (such as withdrawal of permits and authorisations to pursue activities that resulted in the relevant criminal offence, disqualification from holding, within a legal person, a leading position of the same type used for committing the criminal offence, temporary bans on running for public office) (Article 5).

Legal persons may be held liable for criminal offences relating to the violation of EU restrictive measures where such offences have been committed for the benefit of those legal persons by any person who has a leading position within the legal person concerned, acting either individually or as part of an organ of that legal person, or where the lack of supervision or control by a person with a leading position within the legal person concerned has made possible the commission by a person under its authority of a criminal offence for the benefit of that legal person (Article 6).

Legal persons may be subject to minimum fines ranging from 1% to 5% of their total worldwide turnover or from EUR 8 000 000 to EUR 40 000 000, depending on the offence and the method of calculation, as well as to non-criminal sanctions (such as exclusion from entitlement to public benefits or aid, exclusion from public funding, disqualification from the practice of commercial activities, withdrawal of permits and authorisations to pursue activities which have resulted in the relevant criminal offence, placing under judicial supervision, closure of establishment) (Article 7).

The second directive [Directive (EU) 2024/1260][40] updates the rules on asset recovery and confiscation. It aims to reduce the ability of criminals to retain and invest illegal gains and also covers violations of EU restrictive measures. In particular, the implementation of EU restrictive measures against Russia has highlighted the complexity of identifying assets owned by oligarchs who hide them in multiple jurisdictions through complex legal and financial structures.[41] Member States have to transpose the directive by 23 November 2026 [Article 33(1)].

This directive establishes minimum rules on the tracing and identification, freezing, confiscation and management of property within the framework of proceedings in criminal matters (Article 1). It applies to a wide range of criminal offences (such as terrorism, trafficking in human beings, sexual abuse and sexual exploitation of children and child pornography, illicit drug trafficking, illicit drug trafficking), including the violation of EU restrictive measures under the Directive (EU) 2024/1226 (Article 2). The new directive provides for procedures for the tracing and identification (Articles 4-10), freezing and confiscation (Articles 11-19) and management of assets (Articles 20-22).

Each Member State shall set up at least one asset recovery office to facilitate cross-border cooperation in relation to asset-tracing investigations. The asset recovery offices will be tasked with tracing and identifying instrumentalities, proceeds or property, in support of asset tracing investigations carried out by national authorities and the European Public Prosecutor’s Office. They will also carry out tracing and confiscation tasks for proceeds that are the subject of a freezing or confiscation order issued by a body in another Member State. (Article 5). To enable asset recovery offices to carry out their tasks, Member States must ensure that they have

[40] Directive (EU) 2024/1260 of the European Parliament and of the Council of 24 April 2024 on asset recovery and confiscation.

[41] EUROPEAN COMMISSION (2023): Commission welcomes the political agreement on rules strengthening asset recovery and confiscation in the European Union.

access to the relevant national databases and registers, and in some cases this access should be direct and immediate (Article 6).

Member States need to take measures to enable the freezing of property in order to ensure a possible confiscation and to ensure, in the event of a final conviction, the confiscation of instrumentalities and proceeds stemming from a criminal offence. Member States will not only be obliged to ensure the confiscation of instrumentalities and proceeds stemming from a criminal offence. They will also have to adopt rules which allow them to confiscate property of a value corresponding to instrumentalities or proceeds stemming from a criminal offence (Articles 11-12). Where criminal assets or property of equal value are transferred to a third party, it must also be possible to confiscate them, but only if the third party knew or should have known that the purpose of the transfer or acquisition was to avoid confiscation (Article 13). Member States may use the property confiscated in relation to the offences referred to in Directive (EU) 2024/1226 to contribute to mechanisms to support third countries affected by situations in response to which EU restrictive measures have been adopted, in particular in cases of war of aggression [Article 19 (2)].

Member States will be required to designate asset management offices to manage the frozen or confiscated property, either through direct management or through the provision of support and expertise to other bodies responsible for the management of frozen and confiscated property (Article 22). Member States will also be required to enable the sale of frozen property, even before final confiscation, under certain conditions, such as where the property is perishable or rapidly depreciating (Article 21).

Conclusion

The overview presented in this paper provides a picture of EU restrictive measures as a CFSP instrument. While sanctions legislation is adopted at EU level, its implementation and enforcement are the responsibility of EU Member States. Discrepancies in national implementation across Member States became a concern in the context of the sanctions adopted in response to Russia's invasion of Ukraine in 2022. At a time when the EU is increasing its scrutiny of sanctions violations, the EU adopted the directive harmonising criminal offences and penalties for the violation of EU restrictive measures [Directive (EU) 2024/1226] and the directive strengthening the EU's powers of asset recovery and confiscation [Directive (EU) 2024/1260]. Both Directives are expected to improve the implementation and enforcement of sanctions across the EU. Whether they actually contribute to improvements will only become clear once they have been transposed into the national law of the Member States.

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PRESIDENTIAL ELECTION 2024 IN SLOVAKIA

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Abstract: The goal of this paper is to describe and analyze the Slovak presidential elections, which took place in March and April 2024. Slovak nationalist-left government candidate Peter Pellegrini won the country's presidential election in 2024, cementing the grip of pro-Russian Prime Minister Robert Fico over the country. Fico, who took power for the fourth time last October, has turned the country's foreign policy to more pro-Russian views and initiated reforms of criminal law and the media, which have raised concerns over weakening the rule of law. Peter Pellegrini becomes Slovakia's sixth president since the country gained independence after the split of Czechoslovakia in 1993 and will succeed Zuzana Čaputová, the country's first female head of state. Pellegrini had 53.12 percent of the votes, versus 46.87 percent for pro-Western opposition candidate Ivan Korčok. Slovak presidents do not have many executive powers, but can veto laws or challenge them in the constitutional court. They nominate constitutional court judges, who may become important in political strife over the fate of Fico's reforms, which would dramatically ease punishments for corruption. Pellegrini's victory means that he will support the government's aims and efforts, and will not be in an opposition like the incumbent liberal president Zuzana Čaputová. With Pellegrini's win, Fico rebounded from two straight presidential election losses. PM Robert Fico was defeated at the presidential vote by Andrej Kiska 10 years ago while Čaputová claimed victory over a candidate he supported in the 2019 ballot.
Key words: Slovakia, elections, president, presidential candidates, political parties
JEL: N40

Introduction

In Slovakia, the president has limited powers that include appointing ambassadors, returning legislation to parliament and issuing amnesties. However, the hardball campaign waged by Peter Pellegrini and his supporters attested to the importance that Robert Fico's coalition government, which includes Pellegrini's Hlas party, put on controlling the presidency as well as the rest of the executive branch. Ivan Korčok denounced the aggressive campaign tactics of the Pellegrini campaign.[1]

After Korčok beat him by five percentage points in the first round of the election, Pellegrini promised on March 24 to maintain decency and not to descend into aggressive tactics ahead of the election runoff. Nevertheless, two days later, Fico denounced Korčok as a warmonger who unhesitatingly supports everything the West tells him, including dragging Slovakia into the Russia-Ukraine war. Korčok, who has previously served as Slovakia's foreign minister as well as its permanent representative to the EU, protested that it was actually Fico's government and parliamentary majority, not the president, that had the power to declare war under the country's constitution.

The opposition-backed Korčok saw no reason to send Slovak soldiers to fight in neighboring Ukraine, but added that he supported Kyiv in its war against invading Russian forces, because if Ukraine loses the war, it brings war that much closer to the Slovak border.

[1] NICHOLSON, T. (2024): Slovak presidency goes to PM Fico's proxy.

Pellegrini harked back to the Covid-19 pandemic, which unfolded during the previous 2020-2023 government in which Korčok served as foreign minister.

On April 5, a day before the final vote, members of Pellegrini's party shared doctored images of a frail older woman embracing a man in military fatigues, with the caption: "Come out and vote. Don't let Slovak sons and grandsons die in war." Similar "attacks" continued by the moratorium before the second round of elections. It looks like that in Slovakia someone can win the presidency without running a transparent campaign and the presidency can be won by someone who spreads hatred and inflames, and accuses his opponent of being a war candidate.

Pellegrini's victory strengthens Fico's grip on power since he returned to the prime minister's office last year and heralds a decisive shift in policy towards Russia. Slovakia's about-face from being a strongly pro-Ukraine NATO ally was completed as Peter Pellegrini, a coalition partner of populist Prime Minister Robert Fico's government, comfortably won the presidential election.[2]

Pellegrini's election also ridding PM Fico of one of the last checks on his power, the incumbent President Zuzana Čaputová, and enabling him to push through illiberal, anti-democratic legislation and conduct a pro-Russian foreign policy. Pellegrini defeated the strongly pro-Western former diplomat Ivan Korčok, who was supported by all the opposition parties, both liberal and conservative, by a margin of 53 percent to 47 percent in the runoff – which was a more sizeable majority than the polls had been predicting.[3]

The first round saw Korčok defeat Pellegrini and the other seven candidates. However, in the two weeks between the rounds, a concerted smear campaign by the coalition about how Korčok would try to bring down the government and send troops to fight in Ukraine, coupled with Pellegrini's courting of the far-right vote was enough to get the current speaker of the parliament and a former premier himself over the finish line.

Now it is expected that the government would now have support in its aims rather than have to deal with an "opposition, opportunistic power center", referring to President Čaputová. Pellegrini's presidency would likely accelerate Slovakia's foreign policy shift towards Hungary and this closer cooperation between Bratislava and Budapest could weaken EU unity on Ukraine/Russia and related topics. Both countries could also use their combined leverage in negotiations with Brussels on issues like access to EU funds or the rule of law.

2 The results of the presidential elections

The presidential elections in Slovakia featured a crowded field, but it was sure that the biggest winner could be the prime minister if he could get his candidate elected. While this might help Robert Fico push through his agenda, the economy will remain a thorn in his side.

Slovakia knew that it would get a new president in 2024, after the incumbent, Zuzana Čaputová, had announced in June 2023 that she wouldn't seek re-election in the presidential vote. Among the country's most popular leaders, Slovakia's first female president hasn't been spared the bricks and bats that are part and parcel of the vicious, polarized political debate in the country. Indeed, this divorced mother of two, lawyer and standard bearer for progressive causes is currently suing the new prime minister, Robert Fico, for lies she claims he and his Smer-SD party spread about her during the rancorous September parliamentary election campaign.

Fico, a pugilistic pro-Russian populist, long ago abandoned civility, proportionality and accuracy in his pursuit to regain power after being dumped out of office in 2018 following mass street protests in the wake of the contract killing of investigative journalist Jan Kuciak and his fiancée, Martina Kušnírová. However his no-holds-barred approach to completing a remarkable political comeback in 2023. That power supposed to be enhanced in 2024 if the three-party

[2] AP NEWS (2024): An ally of Slovakia's populist prime minister is favorite to win the presidential election.
[3] BEŇO, M. (2024): With Pellegrini elected president, he's giving up several posts.

coalition, led by Smer-SD, that governs Slovakia can get its candidate, Peter Pellegrini, elected as president. Although, at first, he did not announce his decision on whether to run or not for a longer time (until mid-January), Pellegrini, the current speaker of parliament and chairman of the coalition Hlas party was expected to be a candidate.

There are only two basic rules regarding the voting system in Slovakia. Every Slovak citizen who has reached the age of 18 on the day of the elections can vote for the president. Voting is only possible on Slovak territory though. This year, a total of 11 candidates ran in the first round of this year's presidential election. Opinion polls suggested that two of the candidates were clear favorites from the start: Peter Pellegrini and Ivan Korčok. Even, these public opinion polls indicated the second round would be a tight battle between Peter Pellegrini, leader of the Hlas party and the current speaker of parliament, and Ivan Korčok, a professional diplomat who served as foreign minister between 2020 and 2022.

The first round of the presidential election was held on March 23, 2024, when surprisingly, the former diplomat Ivan Korčok (42.51 percent and 958,393 votes) outran Speaker of Parliament and Hlas party leader Peter Pellegrini (37.02 percent and 834,718 votes).[4] Voters who did not want to completely hand over the country to a government attacking the rule of law, independent media and civil society won the first round of a “referendum” on Prime Minister Robert Fico. At the same time, in the second round, it was obvious that the future president would also be decided on by people who would hand over this office, without hesitation, to former judge Štefan Harabin and his disinformation group. However, Korčok’s victory in the second round was not certain, because he needed further support. Pellegrini had made it through despite not saying anything voters would remember. He didn’t promise anything that Fico hadn’t already promised. A collection of political clichés about peace and a dignified life was sufficient to come in second.[5]

A final duel between Peter Pellegrini and Ivan Korčok was long expected, but after the first round it was more Korčok vs. Pellegrini – and that has somewhat changed the dynamics of the campaign. After Korčok won the first round, the Pellegrini campaign seems to have realized that smiling, avoiding confrontation and proclaiming their candidate’s love for “peace” may not suffice to carry their candidate into the Presidential Palace after all.

The last week of campaign, which was truncated by the Easter holidays, brought a more confrontational tone into the campaign, in contrast to the somewhat tepid offering before the election’s first round. The ruling coalition has been accusing Korčok of planning to bring down their government, of wanting to give up Slovakia’s right of veto in the European Council, and even of plotting to “drag Slovakia into war”. Politicians from Pellegrini’s Hlas party have alleged that Korčok would send Slovak troops to Ukraine, to which Korčok has responded, accurately, that such a decision is not even within the competence of the president. Prime Minister Robert Fico, who has played a supporting role in the Pellegrini campaign, has taken to promoting an absurd narrative about Korčok, spread initially in the disinformation media, that links him to the 1999 NATO bombing of Belgrade.

After a surprise victory in the first round, former foreign minister Ivan Korčok emerged as a winner in three of opinion polls. However, Peter Pellegrini, the speaker of parliament, has an equal chance of winning the second round. The margin in the polls, with the exception of one survey, was exceedingly narrow.

The polling stations reopened in Slovakia after two weeks, as runoff voting for the country's presidential election began. The brief but intense campaign was replete with smears and apprehensions, in contrast to the dreary campaign preceding the first round. In contrast to the first round, where Pellegrini was favored, the majority of polls favor the former diplomat this time around, albeit with a modest margin.

[4] STATISTICAL OFFICE OF THE SR (2024): Presidential Election.
[5] STATISTICAL OFFICE OF THE SR (2024): List of Candidates.

The second round, held on April 6, was a surprise to many again, because in a contrast to the opinion polls, the results of the run-off elections showed that Speaker of Parliament, Peter Pellegrini, will become Slovakia's next president. Pellegrini received 53.12 percent (1,409,255 votes), while Korčok ended up in second place with 46.87 percent (1,243,709 votes). The turnout in the runoff round reached 61.14 percent. This is the second-highest turnout since 1999, when the president was elected directly for the first time.[6]

Korčok congratulated Pellegrini on becoming the president-elect with a hope that Pellegrini will act without orders coming from the government. Korčok has been a vocal critic of the current government, which has carried out purges in the police and cancelled the Special Prosecutor's Office to stop the investigation of high-profile corruption. It is attempting to change the Penal Code and to get the public broadcaster RTVS under its control. Dozens of people who served under the previous Smer-SD-led governments have been convicted of corruption and other serious crimes.

In response to the smear campaign waged against him by Pellegrini and his team several days before the runoff round, the former diplomat said he would never forget it Pellegrini and the ruling coalition portrayed him as a "war president".

Korčok is a strong supporter of Ukraine, like President Zuzana Čaputová, but Peter Pellegrini has been calling for peace in Ukraine a long time and opposing any military aid to the country. In his campaign, he also claimed that Korčok would send Slovak soldiers to Ukraine to fight in the war. However, this is not a presidential power. It looks like the fear decided the election and Pellegrini won despite the fact that his campaign was non-transparent.

After the election, Pellegrini pledged that the ruling coalition would remain stable and he would support the government. He's been nicknamed a "minion" by the public since late 2023. During the post-parliamentary election talks, the Hlas chair claimed that he wouldn't be anyone's minion. Thus far, his party has supported all the moves announced by the Smer-SD-led coalition. Besides, Pellegrini kept repeating the government's position on the war in Ukraine, and that Slovakia would remain on the side of peace, not on the side of war. Fico's cabinet halted military aid to its neighbor last year, but his cabinet continues to support commercial arms deals, including those concluded by state-owned firms.

As for his campaign, he said that it wasn't based on marketing, nor on a fight against anyone. Pellegrini, who mimics the positions of populist PM Fico when it comes to the country's foreign policy, didn't respond to Korčok's accusations.

It was very interesting to watch PM Robert Fico standing by the president-elect and celebrating. It's known that their relationship isn't ideal. Ahead of the second round, Fico said that Pellegrini was not "an ideal candidate". Fico ran for president in 2014, but he lost to entrepreneur and philanthropist Andrej Kiska. He had received almost 900,000 votes, significantly less than Pellegrini's 1.4 million votes.

Pellegrini had been Smer-SD's top party official for many years. He left in 2020, two years after the murder of investigative journalist Ján Kuciak and after Smer-SD lost the 2020 parliamentary election, pledging that he would never sit in a government with Fico. Pellegrini then established his new party, Hlas, which Fico didn't like. Still, they formed a ruling coalition last year, also with the Slovak National Party.

However, after this presidential election, Robert Fico will have his own president. After ten years, the democratic counterbalance to autocrats will be moving out of the Presidential Palace. The palace will symbolically return to the days when it still served the communist pioneers. This time there will probably not be a boisterous Smer-SD choir singing on the balcony, but even Peter Pellegrini's victory sounds similar to Fico's statement that they are the

[6] DLHOPOLEC, P. (2024): Peter Pellegrini wins Slovak presidential election.

ones who rule now.[7] At the same time, the outcome of the presidential election clearly shows that Slovakia is a divided country and it does not belong entirely to Smer-SD and Robert Fico.[8]

3 Slovakia has a new president

After the first round of the Slovak presidential election Peter Pellegrini needed to change something in his campaign to be more successful in the run-off. He promised he wouldn't lead an aggressive campaign and attack his rival Ivan Korčok, who came in first and he would never influence certain groups of the population just to become president. However, the truth was different. Pellegrini, the disciple of PM Robert Fico, was helped in the campaign by state media and the coalition.

Two days after the first round of the election, Matúš Šutaj Eštok, the interior minister of Hlas, unexpectedly announced that the Security Council would convene an emergency meeting to discuss the situation of a high-risk and dangerous individual from Tajikistan who was being kept in a police facility in Sečovce, a town situated outside Košice. Pellegrini, who is not a member of the Security Council, and Prime Minister and Smer-SD party leader Robert Fico attended the meeting, which was reportedly held in response to the recent Moscow terrorist attack, in which a group of Tajik men opened fire in a local concert hall, and France's decision to raise the terrorism alert level. The Prime Minister unusually allowed the minister to report the outcomes of the meeting. Šutaj Eštok argued that the man wouldn't have arrived in Slovakia had the country not been in chaos in 2022, suggesting that Korčok was co-responsible for the alleged chaos and the foreigner's presence in the country. When today's opposition ruled Slovakia, the former diplomat had been serving as foreign minister for almost two years, from 2020 to 2022.

Pellegrini's minister characterized the Tajik, who is believed to have permanent residence in Ukraine and was detained in Slovakia pursuant to an international arrest warrant issued by Tajikistan shortly after crossing the Slovak-Ukrainian border following Russia's invasion of Ukraine, as a terrorist with ties to the Islamic State group. Šutaj Eštok also claimed that there might be a sleeper terrorist cell in Slovakia. He then announced an increase in police patrols in busy areas, but the terrorism alert level wasn't raised.

The minister's announcement came shortly after Pellegrini, who was widely favored in the polls, was defeated by Korčok, by a margin of 5.5 percentage points in the first election round. Around that time, the second round was already known to be held in two weeks, on April 6, at which point the monitoring of the situation was coincidentally expected to end.

The presidential campaign prior to the first round lacked major topics and seemed boring and invisible, but observers agree that the campaign ahead of the second round was markedly different. Due to Easter and the three-day moratorium, which started on April 4 and ended on April 6, the two remaining candidates didn't have much time to campaign in a race that was expected to be close. While Pellegrini and the ruling coalition launched a smear campaign against Korčok, the ex-diplomat organized public gatherings around the country and fended off the verbal attacks via social media.

Pellegrini also employed the scaremongering strategy during one of the very few televised debates prior to the first round. He asserted that if the right to veto in the areas such as foreign and security policy were abolished in the European Union, France and Germany would likely issue a command for Slovakia to dispatch 2,000 fully-armed soldiers to the Ukrainian frontline. Besides, in one of the final interviews before the second round, Pellegrini

[7] STOKLASA, R. – LOPATKA, J. (2024): Pellegrini wins Slovak presidential election in boost for pro-Russian PM Fico.
[8] TERENZANI, M. (2024): And then they took the Presidential Palace.

exploited fear again. He claimed to have seen how people in Sweden were given leaflets explaining what to do in case of war. In a fact the story was published five years ago.[9]

When Peter Pellegrini, freshly elected as president, got up on stage to address the media at midnight on election day, he was surrounded by many of his friends and allies. But two of the men gathered around him particularly caught the eye of observers.

One of those, Prime Minister Robert Fico, who helped his coalition partner and former protégé to win the race – in part thanks to a blizzard of falsehoods targeting his opponent, former diplomat Ivan Korčok – showed up at the election night party shortly before midnight, once it was clear that Pellegrini would win. Their relationship is understood to be far from perfect, especially since Pellegrini's 2020 decision to quit Fico's party, Smer-SD, after 20 years as a member, saying that he couldn't imagine ever working in tandem with Fico again. The smiles, hugs and handshakes on election night, suggested that any differences have been quietly forgotten.

The other noteworthy man standing next to Pellegrini on election night was Slovakia's only previous two-time president (2004-2014), Ivan Gašparovič. He was, just like Pellegrini, elected with the support of Smer-SD. Gašparovič, a one-time ally of Slovakia's quasi-authoritarian 1990s leader Vladimir Mečiar, described himself, when in office, as an independent president. Yet he quickly grew into a staunch Smer-SD ally. Pellegrini, who will be sworn in as Slovakia's sixth president in June, also pledged on election night not to be an "uncritical admirer" of Fico's government.[10]

As it was mentioned Pellegrini lost the first round to Korčok after a low-key campaign. He had relied on his visibility as the speaker of parliament, and had apparently assumed that would be enough. After coming second to Korčok on March 23, he launched a full-on attack against his opponent ahead of the second round, portraying him as the "president of war" and himself as the "president of peace". These efforts paid off: his first-round vote surged by almost 70 percent to reach 1.4 million, 150,000 more than Korčok received.

The president-elect claimed that the government, of which he is a co-creator, does not have to worry that an opposition power center, which will take pleasure in the government's failures, will emerge in the Presidential Palace, as has been the case for the past 10 years. At the same time, he said that his political party, Hlas, would not leave Fico's ruling coalition, and would preserve its stability.

After the election, many began asking what kind of president Pellegrini would be, given his long history with Smer-SD and PM Robert Fico. It looks like that Peter Pellegrini will not be the president of people – as the Hlas leader is styling himself – but would instead turn into a second Gašparovič, more like Fico's president.[11]

Critics say he has been unable to escape the shadow of his ex-party boss, who boasted a few years ago that he had made Pellegrini into who he is today. In recent months, the Hlas leader has shown little inclination to challenge Fico, especially when it came to the purges in the police, the abolition of the Special Prosecutor's Office, and the radical changes to the Penal Code.

Even on the occasions when Pellegrini expressed some meek dissent – for example, saying he would prefer not to bypass the president when it came to installing the coalition's choice of new intelligence service chief – this quickly evaporated, and he ended up backing Fico's plans. Pellegrini has even declared that, as president, he would not mind signing a bill, mimicking similar authoritarian measures in Hungary and Russia, that would force most NGOs to self-declare as "foreign agents". The measure is being proposed by the third party in the

[9] TERENZANI, M. (2024): Pellegrini's "peace"-driven campaign falls apart ahead of round two.
[10] DLHOPOLEC, P. (2024): Why Slovakia's next president won't be an original.
[11] HELTON, Ch. (2024): Pellegrini is a farce of Trump.

governing coalition, the far-right Slovak National Party (SNS), and represents another highly controversial item on the Fico administration's to-do list.

Although Pellegrini insists that he will not work to Fico's command, still, some observers believe he is unlikely to show much independence. Pellegrini was a significant part of Smer-SD for two decades before he quit the party, and is thus jointly responsible for what Slovakia looks like today, they argue. In addition, he had a change of heart – one of many – and reunited with Fico to form the current coalition last year.

Probably, there is one more prosaic reason why Pellegrini needs to cooperate with Fico's coalition. He may want to seek re-election in five years' time, for which he will need Smer-SD's support and for this reason, he will continue to do what Fico wants.

After the successful presidential elections, PM Robert Fico will need a new enemy he can attract his supporters. It might be Brussels. He has already suggested that Brussels might punish Slovakia for electing his coalition partner, Peter Pellegrini, the next Slovak president.

He pointed out the fact that the Party of European Socialists (PES) suspended Smer-SD's membership after the party won last year's parliamentary elections. PES decided to suspend the party's membership after it formed a coalition with Slovenská Národná Strana, a nationalist party chaired by pro-Russian politician Andrej Danko, and the Hlas party.

In recent months, the European Commission has repeatedly warned Fico's cabinet against adopting bills that threaten the rule of law and European values, including the amendments to the Penal Code and the Competence Act.[12] The European Parliament has also adopted the new European Media Act, which makes it difficult for Fico to take over the public broadcaster. In this regard, Fico announced that Slovakia is holding a tough expert and political discussion with the Commission. The debate concerns the cancellation of the Special Prosecutor's Office and the defense of the new Penal Code, which the Constitutional Court has suspended.

Conclusion

The Fico-led ruling coalition will take control of the presidency in June. That is the main outcome of the presidential election run-off in Slovakia, which Peter Pellegrini won on April 6, with 53.12 percent of the vote. His opponent, Ivan Korčok, received 46.87 percent. Pellegrini will take over the presidency from the incumbent president Zuzana Čaputová on June 15, 2024.

Pellegrini won the Presidential Palace for the ruling coalition, but he also won a way out of the Robert Fico-led ruling coalition for himself. This time last year, and in the months that preceded the September parliamentary election, he had been eyeing the prime-ministerial chair – by far the most powerful in Slovakia's constitutional set-up.[13] That did not work out, and he opted to join the coalition under his political patriarch Robert Fico – despite the fact that the two men had not seen eye to eye since Pellegrini deserted Fico's Smer-SD party to establish Hlas party in 2020. Fico once labelled Pellegrini a "traitor", but on election night the two men hugged in front of the cameras as they celebrated the latter's election win.

Pellegrini's presidency was part of a larger scheme not of his own design. Just a few months before he announced his candidacy, ahead of the September election, he was still saying that he felt young, full of energy and ready for an executive post. That was when he still believed had a shot at the premiership. Then came Hlas party's disappointing third place in the September parliamentary election, the return of Fico – and with it a marked change of Peter Pellegrini.

We can say that another obstacle in Robert Fico's rapid transformation of Slovakia according to the model of Orbán's Hungary has disappeared. Voters in Slovakia strengthened the influence of pro-Russian forces in Central Europe when they elected a candidate who

[12] JOCHECOVÁ, K. – CAMUT, N. (2024): Slovakia, the EU's next rule of law headache.
[13] BALOGOVÁ, B. (2024): Fico wins.

opposes military and financial aid to Ukraine. Pellegrini copied Hungarian Prime Minister Viktor Orbán's tactics from the 2022 election, when the government claimed that the opposition wanted to drag Hungary into war.[14] However, the most important outcome of this presidential election is that Pellegrini's victory will make Robert Fico stronger, as he can now push his agenda without any opposition in the Presidential Palace. Fico's return to power is extraordinary, despite the fact that many considered his political career to be over after resigning from office, along with protests following the murder of journalist Ján Kuciak.

Robert Fico and Peter Pellegrini agree on the country's foreign policy, sharing the same views towards Russia's war in Ukraine. Following Pellegrini's election win, the foreign media described him as "Ukraine-sceptic" and "pro-Russian". During the campaign, Pellegrini called for peace, backed Fico's refusal to supply ammunition to Ukraine from the inventories of the Slovak armed forces, and falsely claimed that his opponent would send Slovak soldiers to Ukraine. However, Fico and Pellegrini have not opposed deals by private Slovak arms manufacturers to supply Ukraine on commercial terms.[15]

Documents signed on that day not only talk about cross-border projects and help with mine clearing in Ukraine, they also suggest that the government's position on Ukraine's future in NATO, Ukraine's territorial integrity and President Volodymyr Zelensky's peace plan, which the government had previously questioned but now supports, seems to have shifted. In 2008, when Robert Fico was in power, Ivan Gašparovič declared that Slovakia wants to see Ukraine in NATO.

In the past, Peter Pellegrini's foreign political thoughts were pro-European. However, similar to Fico, Pellegrini has morphed into a Eurosceptic. Pro-Russian Smer-SD MP Marián Kéry described Pellegrini as someone who is acceptable to all parties.[16] For example, in the prime minister's chair in 2018-2020, he had meetings both in the White House and in the Kremlin. We will see how it works out and Peter Pellegrini, who will be the first politician to have served as speaker of parliament, prime minister and president, will assume his office on June 15, 2024. However, it is obvious that both politicians will seek to find a new enemy. After taking control of all constitutional positions (president, speaker of parliament, and prime minister, etc.), Robert Fico no longer has anyone to blame at home. Therefore, he started ranting about the European Union.

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HISTORICAL ASPECTS OF ISLAM IN KAZAKHSTAN

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Abstract: The religious factor, with the predominance of Muslim tradition, has become part of the political mobilisation of opposition forces in the struggle against the post-communist nomenklatura regimes. Kazakhstan is part of a zone characterised by traditional spread of Islam. Given its ethno-demographic configuration, which coincides with the religious one, no single religious community constitutes the overwhelming majority. Islam in this territory has many characteristics that allow us to talk about the so-called Kazakh version of Islam. One of its features is the relatively long period between the moment of the penetration of Islam and the actual Islamisation of the territory of modern Kazakhstan. Adherence to one denomination was never openly expressed in this predominantly steppe territory. The article aims to analyse the development of Islam on the territory of Kazakhstan, which will allow a better understanding of the unique features of Islamisation in the Central Asian region.
Keywords: Kazakh Islam, importance of Islam, collective identification, ethnic principle
JEL: R23, Z12

Introduction

The socio-political development of the post-Soviet countries of Central Asia is significantly influenced by ethno-cultural diversity. One of the factors that increasingly influence their development is religion, which plays a special role. To a large extent, it has become a reflection of contradictory ethno-political and ethno-cultural processes, and it is increasingly becoming an independent political force that reaches beyond ordinary religious life. Here we see the features of the confessional factor politicization that impact the political culture of the peoples in these states and influence the need for nation-building. This leads to a situation where, in some cases, the confessional factor complements the inter-ethnic contradictions and conflicts that accompany the growth of national self-assertion. In other cases, it can become a mobilising force in political processes. Depending on the type of particular religious ideology, the intervention of religion in socio-political development also brings about conflicting factors.

The religious factor, with the predominance of Muslim tradition, has become part of the political mobilisation of opposition forces in the struggle against the post-communist nomenklatura regimes. In Tajikistan, for example, the Islamic political opposition has become part of the coalition government. In neighbouring Uzbekistan, it was „popular Islam" in the form of Islamic movements (formed in the late 1980s) and independent Muslim clerics that posed a serious political challenge to the official authorities, who, subsequently, adopted the policy that involved banning Islamic movements, persecution of "unsuitable" Muslim spiritual leaders and complete state control over the activities of the Islamic community. In the past years, the contradictory reactions have not only been provoked by the debate over the problems of modern Islam itself, and, more specifically, over the life of the Muslim community in the world.

Kazakhstan is part of the zone characterised by the traditional spread of Islam. Due to its ethno-demographic configuration, which coincides with the religious one, no single religious community constitutes the overwhelming majority. Of the 131 ethnic groups, the two largest ethnic communities, the Kazakhs (48%) and the Russians (34%), which traditionally belong to two religious communities, make up 82%. The Kazakhs are Sunni Muslims and the Russians are Orthodox Christians. The remaining 18% are other ethnic groups belonging to different religious groups. In total, there are more than 1,503 religious associations in Kazakhstan belonging to nearly 30 faiths, including traditional and "new religions". Muslim religious communities make up the majority – 679, Orthodox – 185. In general, these two denominations account for more than half – 57% – of the total number of all religious communities.[1] It is estimated that the total number of religions is 50 and the number of religious organisations has increased to approximately 1,700 communities. Owing to its religious diversity, Kazakhstan cannot be categorised as a country with the absolute dominance of any religious tradition. It should be noted, however, that with the continued pace and scale of the outflow of the European (Christian) population, and with the growth in the number of Kazakh and other Turkic-speaking peoples (especially Uzbeks), the Muslim community in Kazakhstan will dominate in the long term.

What is more, Islam in this territory has many characteristics that allow us to talk about the so-called Kazakh version of Islam. One of its features is the relatively long period between the moment of the penetration of Islam and the actual Islamisation of the territory of modern Kazakhstan. Between these two events, there is a timespan of several centuries - from the 8th to the 16th century. But even in the 18th century, the perception of Islam as a religious doctrine and a way of life was rather superficial. Adherence to one denomination was never openly expressed in this predominantly steppe territory. This feature of religious identity, which is characteristic of the Turkic tribes, the inhabitants of the Great Steppe, as well as of their modern descendants, has manifested itself at different times and in different ways. The article aims to analyse the development of Islam on the territory of Kazakhstan, which will allow a better understanding of the unique features of Islamisation in the Central Asian region.

1 History of the penetration of Islam into the territory of Kazakhstan

The history of the penetration of Islam into the territory of Kazakhstan has passed through several key stages that have influenced the extent of its spread in this part of Central Asia. This long-term process lasted until the 16th century, when the Kazakh community identified itself as Muslim (Sunni, the *Hanafi* school of religious law).

At first, Islam spread to the vast Eurasian steppe zone, which included the territory of modern Kazakhstan in the 8th and 9th centuries. The characteristics of this stage largely determined the nature of future processes of Islamisation.

Firstly, unlike the neighbouring urban centres of the region (Maverannahr), the territory of Kazakhstan was characterised by the predominance of nomadic and semi-nomadic way of life. The features of settled agriculture and urban culture developed only in the south-eastern region, where Islam spread the most. This also impacted the future development of the country.

Secondly, when Islam began to spread in the territory of Kazakhstan, the region was inhabited by ancient Turkic nomadic tribes whose spiritual and religious life was very diverse. From the earliest times, various cultural and ideological systems coexisted here, including a significant layer of indigenous ancient Turkic traditions based on nature and ancestor worship as well as developed magic and veneration of the sky (Tengrism). These traditional ideas were

[1] ADILET.KZ (2024): sovete po delam religij pri Kabinete Ministrov Respubliki Kazachstan. Postanovlenije Kabineta Ministrov Respubliki Kazachstan ot 15 aprelja 1995 g. No 484.

influenced from outside, especially by Eastern Iranian Zoroastrianism, while *Buddhism* played a less significant role.

At the beginning of Islamisation, the Eastern Christian unorthodox teachings of *Nestorianism* and *Manicheanism* gained in popularity. Christian churches were located, for example, in the south-east in the towns of Taraz and Sygnak. At the end of the 14th century, a mission of the Turkish Metropolitan of the Nestorian Church was active among the nomadic tribes. There were also Christian texts in the Turkic language.[2] The interaction of different cultural traditions inevitably gave rise to the syncretism characteristic of the whole pre-Islamic cultural era. Moreover, it was within this era that the ancient Turkic mind-set proved most viable. It was the ancient Turks who merged with Islam and later formed the cultural basis of the traditional way of life in Kazakh society. This is especially true in relation to the periphery of the spread of Islam - central and northern Kazakhstan with its predominantly nomadic way of life. Here, the displacement or even the reshaping of the Turkic pagan heritage by Islam was much less thorough than in the south. Even though Islam was a novelty, it was still influenced by elements of different religious ideologies.

Thirdly, the main role in the conversion of nomads to Islam was played by Sufi missionaries of such brotherhoods as *Naqshbandiya, Yasaviya, and Qadiriya*, which moved to steppes from the settled urban centres of Maverannahr and, especially, from Bukhara. This foreshadowed the prevailing influence in the nomadic milieu of heterodox Islam that naturally combined elements of traditional pre-Islamic and *Sufi* ideas. Unlike in many other Muslim regions, *Sufi* brotherhoods here were not considered heretical, which means that there was no clear division between official and popular Islam.

Thus, the further penetration of Islam into the region and its influence on political life occurred in close connection with pre-Muslim ideologies and with the arrival of Mongol troops with Mongol ideologies. These processes did not result from ideological struggle of ideas, but rather from flexible acculturation and adaptation. There was no displacement or replacement of the "ethnic" Turkic-Mongolian collective identity with an Islamic one. On the contrary, it was an entirely peaceful process of interpenetration of different cultural systems, which, while changing in detail, continued in the future. Ultimately, this led to the creation of a syncretic cultural identity.

In the large states of the post-Mongolian period, which included various regions of present-day Kazakhstan (Golden Horde, Moghulistan), the pace of Islamisation initially even slowed down, but itself began to take on new aspects. The newcomers were gradually integrated into the local Turkic milieu, and, therefore, a kind of elite class of the Turkic-Mongolian nobility emerged. In the later period, with the formation of the Kazakh people in the sixteenth century, the introduction of Islam contributed to the strengthening of the supreme power of khans and the merging of various Kazakh tribes into a single ethnic community.

At that time, the Kazakhs already considered themselves as Sunni Muslims (of the *Hanafi Mazhab* – school of jurisprudence), i.e. Muslims with a defined religious identity. However, they never managed to overcome the syncretism of the Islamic belief they had inherited: strong elements of animism, shamanism and ancestor worship were still part of the religious beliefs and rituals propagated on the steppe in the form of folk Islam, which incorporated elements of pre-Islamic religious ideas. Accordingly, although there was a stratum of *imams, qadis, mullahs, mudaris* and others, who were recognised by all representatives of Islam, the organisational structures of the Muslim clergy remained poorly developed.

[2] SULTANGALIJEVA, A. (2021): Evolucija islama v Kazachstane, Christianity in Central Asia - Encyclopaedia Iranica, v. 5.

2 Islam during Russian colonial expansion

The next stage in the history of Islamisation is associated with the assertion of Russian influence in the 17th and 18th centuries, which meant the loss of political privileges enjoyed by khans and sultans, who had traditionally sponsored the *Sufi* authorities - the *Ishans*. Consequently, the role of *Sufi* brotherhoods, which were highly popular with nomads, diminished. All this, alongside the vagueness of Islamic self-consciousness of the Kazakhs, did not contribute to the emergence of a religious reaction on the part of the steppe to the reaction from the West (from Russia), as it happened, for example, in the Muslim regions that fell under the domination of European countries.

In his book titled "Turkestan", the American geographer Schuyler stated that although the Kyrgyzs and the Kazakhs are considered Muslims, few of them follow strict religious principles. They seldom pray, and their faith is mixed with many supernatural ideas derived from paganism and shamanism.[3] Similar assessment of the religious affiliation of the Kazakhs in the mid-nineteenth century is given by the Russian scholar Levshin in his famous work titled "Description of the Kirghiz Kaisaks, Hordes and Steppes". He claims that when the Kazakh people are asked about their religious affiliation, they usually reply that they do not know. Therefore, the author says that it is difficult to decide what the Kazakhs are - Muslims, Manichaeans or pagans? He notes that they combine Islam and ancient polytheistic cults, they do not fast, they do not pray, and it is only thanks to the Central Asian and Tatar mullahs, who are in the service of the Kazakh nobility, that Islam is not losing ground.[4]

In organisational terms, the Kazakh clergy did not have its own independent spiritual administration and was under the jurisdiction of the Orenburg *Muftiate*. It is difficult to determine the exact number of mosques in Kazakhstan at that time, as data on them are given separately according to regions or districts. For example, there were 52 mosques[5] in the Semirechensk region in 1915. In addition, mosques generally did not have *waqfs* and were supported by voluntary donations. A characteristic feature of Islam in Kazakhstan during the colonial period was that it found itself in a new ethno-social situation.

In the late 1870s and early 1880s, two large Muslim communities, the Uighurs and the Dungans, moved from the border areas of China to the territory of south-eastern Kazakhstan. These were the peoples with a long-settled agricultural tradition, which strengthened the position of Islam in the south, which was already stronger than in the nomadic areas. Their resettlement was linked to the next stage in the development of Russian-Chinese relations, when large Muslim groups of Uighurs, Dungans and Kazakhs, who lived in the Ili region of China, adopted Russian citizenship in order not to be a minority within the alien cultural environment of China and to become closer to the spirit of the environment. The addition of the Muslim population in the strategically important Semirechye region also strengthened the position of Islam, which raised concerns among the Russian authorities. As a result, they imposed certain restrictions on the resettlement of the Uighurs and the Kazakhs. A total of 45,373 Uighurs, 4,682 Dungans and 5,000 Kazakh Jurats[6] had moved into Semirechye.

Ties with the Tatars in the Volga region had a significant impact on the spiritual culture of Kazakh society, both in terms of its familiarity with the classical Islamic heritage and its enlightenment as a whole. In the mid-19th century, the Tatar population in the cities of Kazakhstan was one of the most influential groups among the Muslim community, and it was

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[3] SCHUYLER, E. (1876): Turkistan. Notes of a journey in Russian Turkistan, Khokand, Bukhara, and Kuldja. vol. 1, pp. 37-38.
[4] LEVŠIN, A. (1996): Opisanie kirgiz-kazačnych i kirgiz-kaisackich ord i stepej, pp. 367-371.
[5] CENTRAĽNYJ GOSUDARSTVENNYJ ARCHIV RESPUBLIKI KAZACHSTAN (1999): F. 44, op. 1. d.4807, l. 10.
[6] KAZ-EKZAMS.RU (2010): Osobennosti islama v Kazachstane.

the Tatar clergy who played a decisive role in the thorough conversion of the Kazakhs to Islam.[7] At that time, Kazakh youth received their spiritual education in Muslim educational institutions in Ufa and Kazan. According to the newspaper "Kazakh" (1917), during the ten years of the existence of the famous *madrasa* “Galia” in Ufa, 154 Kazakhs became its graduates.[8]

As far as ethnic composition is concerned, the Kazakhs constituted the majority among the local Muslims (90%), while the proportion of other peoples was insignificant. In 1897, the Uzbeks accounted for 4.95%, the Uighurs 3.7%, the Tatars 0.63%, and the Dungans 0.3% of the Muslim population.[9] Their tendency to local concentration must also be taken into account. Thus, in many regions of Semirechye, the Uyghurs and the Dungans formed the majority. The Tatars settled mainly in the cities. The peculiarities of settlement contributed to the fact that some Muslim institutions acquired a more ethnic character.

According to official Russian figures, by 1914, there were 8.5 million Muslims in Asian Russia - the territories of the empire east of the Urals. They were the second largest religious group after the Orthodox, of which nearly half were the Kazakhs. According to the "Map of the Distribution of the Population of Asian Russia by Religion," Muslims were made up of: „ Kazakhs, Sartans, Uzbeks, Turkmens from the Kyrgyz steppe, and Turkmens and Tatars from the three Siberian provinces. For example, the Orthodox in this part of the empire accounted for 11.5 million people.[10] The exact number of mosques and Muslim schools that existed in the territory of Kazakhstan at that time is now difficult to determine, because the figures were given by district, and after the administrative reform of 1860, in some districts, the Kazakh regions were merged with the modern Kyrgyz territories. Thus, for example, the Semirechensky district was created, including Przhevalsk and Pishpek, where, by 1912, there were 288 mosques, 175 imams, 14 mullahs, 84 schools of the old method, 27 schools of the new method, including *madrasahs* and mektebs.[11]

The presence and increasing number of Russian settlers also brought new shades to the religious life of the region. Despite the failure of Christian missionary work in the steppe as a whole, there were still isolated cases where the Kazakhs converted to Orthodoxy. This was usually associated with commercial considerations, since, according to a special government decree of 1822, the Kazakhs who converted to Christianity were given certain privileges. They were thus included among the Russian settlers, the so-called factory peasants, whose property rights were protected by the administration, and, for the first six years, they were exempt from taxes.[12] The perception of Orthodoxy was superficial as its dogmatic aspect was misunderstood. Thus, it is no coincidence that a superficial perception of Christianity led to frequent disaffiliation from the Orthodox faith.

Paradoxically, the opposite was happening – the Russians were converting to Islam. As the local Russian newspaper "Turkestan Diocesan Gazette" reported in 1908, the conversion of some Russians to the Muslim religion could be explained by the fact that the Muslim faith seemed to be more in line with their life situation. It provides the example of the priest Gornov (originally a Russian), who converted to the Muslim faith and was given 1,000 rubles by the Muslim society to open a shop and better provide materially for his old age. In this context, the newspaper states that begging is a Christian mission.[13]

People were also guided by practical considerations as they could expect help from Muslim neighbours in various activities of practical life. What is more, they could improve their

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[7] BEJSEMBIJEV, K. B. (1961): Idejno.političeskie tečenija v Kazachstane konca XIX i načala XX vekov, p. 90.
[8] SULTANGALIJEVA, A. (1999): Evolucija islama v Kazachstane.
[9] KAZ-EKZAMS.RU (2010): Osobennosti islama v Kazachstane.
[10] GLINKI, G. V. (1914): Atlas Aziatskoj Rossiji. Izdanije preselenčeskogo upravlenija Glavnogo upravlenija zemleustrojstva i zemledelija.
[11] SABITOV, N. (1950): Mekteby i medrese u Kazachov.
[12] SALYK, G. (2024): Čerez objektiv istoriji.
[13] KUKUŠKIN, N. V. (1996): Synkretizm religioznogo soznajia pravoslavnych v Kazachstane.

financial situation by accepting *kalym* (bride price), etc. All cases of *proselytism*, both of Kazakhs and Russians, were to be reported to the highest authorities, which indicated the great importance that the authorities attached to these events.

The very status of Islam was largely determined by the attitude of the Russian authorities towards it, which was not consistent. At the initial stage of colonisation (the 17th century), the new rulers did not interfere in the religious life of the Kazakhs. Besides this, Islamisation was even supported to some extent by practical measures. State funds were mainly allocated for the construction of mosques and the payment of salaries to *mullahs.* There was a hope that with the help of loyal Muslim clerics, it would be easier to control the socio-political processes in the steppe.

Accordingly, from the 1880s, Russian policy towards Islam became more rigid and the orientation towards the "triumph of the idea of Russian nationalism" became more pronounced. Many measures were adopted that significantly interfered with the freedom of spiritual and religious life of the Kazakhs. According to a special decree, control over it passed from the competence of the Ministry of Foreign Affairs to the Ministry of the Interior of Russia, i. e. to police authorities. Restrictions were imposed on the establishment of Muslim educational societies as well as on the pilgrimage (*hajj*) to Mecca.

The performance of the pilgrimage by Kazakh Muslims was also hindered by the fact that the route to Mecca was via Istanbul, from where the ideas of Pan-Islamism and Pan-Turkism were actively promoted at the time. In addition, there was the factor of the constant Russian-Turkish controversy. Fearing the spread of anti-Russian Islamic propaganda from the neighbouring Kokand and Bukhara khanates, the authorities prohibited their inhabitants from crossing the Russian territory.

However, the main focus was on public education with the purpose of limiting the scope of Islamic education. The Russian authorities understood that it was the school that reproduced the Islamic cultural tradition and, as Russian official sources stated, it was necessary to change the Muslim school into a Russian school.[14] Therefore, in line with this policy, the authorities considered secular Russian-Kazakh (Russian) educational institutions of various levels as an obvious alternative to Muslim education. There were other demands, which seemed to be insignificant, but, in fact, they deeply harmed the religious feelings of Muslims. The Russian administration insisted on the compulsory installation of portraits of the emperor in *mektebs* and *madrassas*, regardless of the fact that official Islam strictly prohibits visual representation of any living being.

3 Soviet era

The next stage of the development of Islam on the territory of Kazakhstan was related to the emergence of the USSR. In this connection, it should be emphasised that the policy of the Soviet government towards Islam was carried out within the framework of the general policy towards religion. All the conceptual provisions of this policy were made by the central government in Moscow. All decisions on the creation of state structures in religious matters were therefore duplicated. The peak of the religious revival falls in the mid-1920s.

According to archival documents, Muslim institutions operated in almost all regions of Kazakhstan and brought together clerics of various nationalities - Kazakhs, Uighurs, Dungans, Uzbeks and Tatars. Like before, they constituted about 90% of the faithful and clergy. In 1924, there were several dozen religious schools in the republic. What is more, a Muslim judiciary

[14] LYSENKO, J. A. (2013): Razvitije islamskogo občestvennogo dviženija v Kazachstane v načale 20 veka i pozicija regionalnych organov vlasti.

was functioning, mosques were being built, and there was a revival of *Sufi* practice.[15] However, like in the pre-Soviet period, religious activity was not the same in all regions of Kazakhstan.

In the south, there was a clear desire to develop Islamic institutions, including the return of *waqf* influence to the sphere of clerical control. In the north, the degree of Islamisation was much lower. There were only a few theological schools and Muslim legal practice was absent. The Kazakh clergy, previously dispersed, came after 1923 under the jurisdiction of the Central Spiritual Administration of the Muslims of Inner Russia and Siberia, with its centre in Ufa. The practice of mass collections of donations from the population (*zakat*, *sadaqa*) became widespread. The sums collected were distributed among the official clerics as well as among those who met the spiritual needs in the sphere of popular Islam (anans, murids, dervishes).

What made the first decade of Soviet power remarkable was the benevolence of the Muslim community, especially in the southern regions, in providing financial assistance to new beneficiaries: local authorities, trade unions, the Komsomol, etc. This showed that new ideas and practices introduced by the new government, including the idea of separation of religion and state, had not yet taken root in society, which remained essentially patriarchal. The preservation of the traditional system of social ties thus influenced the nature of the relationship between the representatives of the new power structures and the rest of the population.

The influence of the "Islamic factor" began to raise serious concerns for the authorities that seemed to be losing ideological influence among the masses. Accordingly, state policy towards Islam was becoming more rigid. In 1926, a document entitled "Theses on the Anti-Religious Propaganda of the Muslims of the Kazakh Soviet Socialist Republic" was published. The contents of this document stated that there had been an increase in the activity of Islam and the Muslim clergy. At the same time, it was pointed out that the remnants of shamanism in connection with Islam occupied a significant place in the religious life of believers.[16] As a result, the authorities decided to take “appropriate measures” to suppress religious activities in an attempt to expose Islam as an instrument of class subjugation. Consequently, anti-religious propaganda was to be promulgated against it at all levels.

The year 1926 saw the thesis about the anti-Soviet nature of Islam appearing for the first time in official documents, and from 1927 onwards, it was no longer so much a question of anti-religious agitation and propaganda, but of the measures to combat Islam, which was labelled a class enemy of the working people. Anti-religious propaganda was introduced in schools and, in 1929, a special decree banned the teaching of Islam at any level. There were also changes in the organisational structure of the Muslim community. Local Muslim administrative structures were abolished, and the Muslim community, in the person of its representative body, the *Kazyat*, came under the jurisdiction of the Spiritual Administration of the Muslims of Central Asia and Kazakhstan (SADUM), established in Tashkent in 1941.

From the post-war period until the mid-1980s, the principles of religious freedom were completely forgotten as a result of the state policy of atheisation of society. The existing official structures of the Muslim clergy were under the control of the state and they became part of the administrative-bureaucratic system that developed in the country. Available documents show that the number of mosques and Muslim clerics from the 1950s to the late 1980s ranged from 20 to 29, and the number of registered clerics from 25 to 59, including *imams*, *muezzins*, and *mullahs*. As official documents show, in 1961, the construction of religious buildings was halted, revenues from mosques declined, and atheist propaganda improved.[17] Occasionally, official documents recorded the nationality of Muslim clerics. Therefore, it is estimated that

[15] TULEPBAJEV, B. A. (1990): Preodolevaja religijoznoje vlijanija islama. Sbornik dokumentov i materialov, pp. 90-98.
[16] ALPYSPAJEVA, G. A. – ŽUMAN, G. (2022): Islamskij diskurs v gosudarstvenno-konfessionaľnej politike sovetskoj vlasti v Kazachstane v 1920-1930 let.
[17] KAZ-EKZAMS.RU (2010): Osobennosti islama v Kazachstane.

most of them were the Kazakhs. For example, of the 25 imams in 1960, 21 were Kazakhs, 3 Uzbeks, 1 Tatar, and 1 Uighur.[18] In fact, religion, including Islam, came under the overt and covert control of the authorities, and state interference in religious life became absolute.

4 Islam in the era of Kazakhstan's political independence

The term "Islamic revival" is often used to describe modern processes associated with Islam in Kazakhstan. This looks more like a tribute to traditional attitudes, as, in reality, we often talk about completely new phenomena and processes in the life of the Islamic community. Rather than that, it is a new stage of Islamisation. This process expressed itself especially through the sphere of official Islam, the activation of Islamic dogma and cultic practice.

In 1990, the first independent Muslim clerical administration (*muftiate*) in the history of Kazakhstan was established. Besides this, a network of Islamic education was created, including a higher education institution called the Islamic Institute (with a two-year course in Almaty). By 1996, 300 people had graduated from this higher education institution and began working in the country's mosques. Many mosques offered courses to train the lower clergy, and religious education was carried out in various circles and in Sunday schools. As a rule, Arabic script and the basics of Islam were taught. In addition, students were sent abroad to study. Thus, in 1996, 80 people studied at the famous Al-Azhar Islamic University in Egypt, 100 students in Turkey and 20 students in Pakistan.[19]

In 1992, the Islamic newspaper "*Iman*" was published in the Kazakh language, which was later transformed into the magazine "*Islam Alema*" (World of Islam). For the first time in 1990, the Quran was published in Kazakh language. Islamic propaganda literature was produced and distributed as well (translations of foreign Islamic books and manuals on the Islamic cult, including those originating in Russia and Turkey). The construction and reconstruction of mosques took off enormously; according to the *Muftiate*, there are now more than 5,000 mosques in the country (for example, in 1979, there were 25 mosques, in 1990 only 63). In the four years after gaining independence, 1,000 people went to Mecca.[20]

The uneven penetration of Islam has determined corresponding differences in the degree of Islam's presence in different parts of Kazakhstan. In addition, there are obvious differences in cultural orientations between urban and rural areas. One of the permanent factors is the alien religious environment surrounding Islam in multi-ethnic Kazakhstan. The official Muslim clergy generally show loyalty to the state and do not go beyond religious activities.

It should be noted that religious freedom and liberation from what once was total state control brought about difficulties in the life of the Muslim community. In many ways, these were due to the lack of established institutional traditions of the Islamic community in Kazakhstan over the past three centuries. There was no independent *muftiate*, and there was a lack of recognised authorities among the Islamic clergy. It can be said that few were prepared for the rapid acquisition of a separate and independent status for the Islamic community. Therefore, it is no coincidence that common issues concerning unexpectedly open access to resources, power, positions, and foreign avenues emerged at the centre of the community's attention. The events associated with the storming of a mosque in Almaty by a group of youth in 1992, the controversy over the leadership of the *muftiate* among the Muslim clergy, and the ongoing generational turnover within its ranks reflected the existing problems of the Muslim community.

There are no political parties or organisations in Kazakhstan that advocate the introduction of Islamic socio-political institutions into the life of society and the building of a

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[18] Ibid.
[19] IZBAIROV, A. K. (2020): Process musuľmanskogo obrazovanija v Kazachstane: od besporjadka k sistemnosti.
[20] SULTANGALIJEVA, A. (1999): Evolucija islama v Kazachstane.

theocratic state. It is no coincidence that when the Islamic Revival Party was founded in 1990 at the Congress of Muslims of the Soviet Union in Astrakhan, Kazakhstan had no representatives there. It should be noted in this connection that the state prohibits the formation of religious parties. It is written in the Law on Public Associations and in the Law on Political Parties that the activity of parties on a religious basis is not allowed. Existing secular political parties, including ethnically oriented ones, do not turn to Islam in their ideology.

In the early 1990s, the unregistered political group "*Alash*" tried to give itself the image of an „Islamic party", but this attempt was unsuccessful for various reasons. In general, the essence of the ideology of this group of young intellectuals reflected the sentiments of the nationally and radically oriented part of the then-Kazakh society. Indeed, in the sphere of political structure, "*Alash*" proposed a secular model of the state, which was not based on the principles of Islamic law, but on the democratic norms of the European model. This group, however, disintegrated in 1993.

This fact confirms the thesis that Islam in Kazakhstan, given the historical features of its development, the specific features of its formation, and the development of religious, cultural and political processes, has not become a decisive factor in the socio-cultural life of society.

It is undeniably interesting that religious and cultural societies, many of which are female (e.g. the Muslim Women's League, the Fatima Association, the *Rifah* movement), have found their place in diverse public life. They focus on nurturing the ethnic and religious identity of the peoples with a Muslim tradition, which practically entails the reinterpretation of the patriarchal values of traditional society. Their activities are educational and charitable in nature. These social movements are generally led by people with a secular education. One of the first social movements was founded in 1990 - the League of Muslim Women of Kazakhstan, which has been publishing the newspaper "*Ak Bosaga*" (Light Threshold) since 1993. The aim of this organisation is the revival of national family and domestic traditions, assistance to the underprivileged, and religious education of girls. In 1992, the League, under a specially designed programme called "*Quran Courses*", organised Islamic education for women representatives of the Republic in Turkish religious schools, including the study of Turkish and Arabic.[21] The creation of the Spiritual and Philosophical Society of *Sufi* Brothers in Almaty in 1992 was also very interesting, given the role that *Sufism* had played in the spiritual and political history of the Kazakhs. It has brought together philosophers, writers and cultural figures to study and understand Muslim *Sufi* philosophy.

We believe that Kazakhstan needs to take advantage of the already accumulated successes in building a secular modernised society. The adult literacy rate is 98.4%.[22] In this respect, the religious worldview of the Middle Ages distinguishes Kazakhstan from the Muslim countries of the East, where large segments of the population are still illiterate. The situation in Taliban-dominated Afghanistan is a case in point.

Due to deteriorating social conditions and material wealth inequality, the factor of education is becoming particularly important in Kazakhstan. Given the continuing decline in access to modern education, the illiteracy of the population is likely to increase. As stated in the UN Human Development Report, schoolchildren in low-income families are forced to carry out domestic work and, therefore, do not receive complete education. What is more, religious education, usually free of charge, in the form of Sunday clubs and schools at mosques, and *madrasas*, etc., is gradually increasing. This means that for the socially disadvantaged population, religious education is becoming the only education available, which, of course, is not capable of replacing a full education in a secular school. Moreover, thanks to the financial

[21] SULTANGALIJEVA, A. (1999): Evolucija islama v Kazachstane.
[22] Kazakhstan (2024).

and ideological support of foreign Muslims, Muslim primary schools and *madrasas* are able to provide full allowances to students, which naturally attracts representatives of the poor.

The alien religious environment surrounding Islam in multi-ethnic Kazakhstan is a permanent factor. The historical coexistence of Islam and Orthodoxy in this region has contributed to these two faiths being less Orthodox than Orthodoxy in Russia or Islam in the Middle East.

Collective consciousness is generally united and shares secular principles when it comes to power. The absence of the phenomenon of political Islam in one form or another may be proof of this. To date, there is no corresponding structure for the activity of political Islam in Kazakhstan, even in the form of parties and movements. In fact, with increased ethnic self-awareness linked to religion, pan-Kazakh national integration in society divided for several reasons, is becoming even more complicated. The satisfaction of socio-cultural needs, especially in the religious sphere, should not go beyond the private life of citizens. Without religion being exclusively a sphere of personal life and not endorsing the norms of socio-political life, the transition to civil society and the rule of law becomes problematic. One of the prerequisites for the integration of the fragmented Kazakh society may be state support for active interreligious dialogue. In this area of religious life, the role of the state will be of particular importance.

Conclusion

What we sought to outline in the paper is the fact that, historically, Islam was not a form of social organisation for the Kazakhs, but rather an element of collective identification, including tribal and later also ethnic affiliation. This was primarily due to the specific features of Islamisation in the predominantly nomadic Kazakh society. What is more, the attempts of a certain part of modern Kazakh society to absolutise the role of Islam in Kazakh history and culture are not historically conditioned. They naturally reflect the current stage of mythologisation of history aimed at building and consolidating the nation-state.

The conversion of a certain part of society to Islam is relevant, particularly in terms of the revival of Kazakh national life, which means, above all, the revival of the Kazakh language and moral values. Islam is important for society not so much as an ideological system, but as a part of national memory, which is natural for the current stage of ethnic consciousness of Kazakh society in general. It is no coincidence that the title of one of Kazakhstan's first historical, literary and ethnographic publications entitled "Islam Shapagaty" (The Mercy of Islam) focuses not on religious education, but rather on acquaintance with the history of the peoples of Kazakhstan and Central Asia, with their literary heritage, customs and traditions. Although Kazakh society is characterised by the identification of ethnic and religious principles, Islam was not the basis for building its social structure. It is no exaggeration to say that the presence of Islam is rather symbolic even though there are regional differences as the population of the southern regions of the country is more religious.[23]

The essential element in the formation of Kazakh identity was the ethnic principle, which was complemented by Islam. It is no coincidence, for example, that there are no references to Islam in the ideology of Kazakh ethnically oriented movements of very different orientations, from radical to moderate. Enlightenment or social movements that use or follow Islam have found no supporters. In general, the awareness of Islamic identity as part of ethnicity characterises the mentality of Kazakh society although the extent and the depth of this awareness will vary for different segments of society. Therefore, it can be said that there is no single approach regarding the role and place of Islam in Kazakh identity.

[23] ATKIN, M. (1991): Religious, national, and other identities in Central Asia – Muslims in Central Asia: Expressions of identity and change, pp. 47-72.

On one hand, Islam is perceived as a tool to reconstruct and reclaim Kazakh ethnic and cultural identity in the new independent statehood. This is quite understandable given the fact that the Kazakh ethnos was on the verge of eroding its cultural integrity. In addition, according to various sociological data, about 90% of the Kazakh population consider themselves Muslims, which does not indicate a loss of religious affiliation to Islam.[24]

On the other hand, there is a general belief that Islam has not penetrated deeply into the Kazakh spirit and philosophy. Therefore, Kazakh culture and way of life are characterised by a syncretism of different cultural traditions. In line with this approach, one can also consider the understanding of Kazakh religious identity by the country's top state officials. For example, historically, *Sharia* has not displaced from their consciousness *adat* norms, the older system of social institutions, and customary law, in which there is no place for religious radicalism.

A significant number of the Kazakhs believe that it was the different approaches to Islam that served as the basis for the division of the Turkic tribes into two nationalities – the Uzbeks and the Kazakhs - in the 19th century. This belief is based on the fact that the Uzbeks were adherents of *Sharia* and the Kazakhs considered themselves as upholders of *adat*. Besides this, the Kazakhs followed ancient Turkic laws throughout their history.

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BONYAD AS A TOOL OF IRANIAN REVOLUTIONARY IDEOLOGY

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Abstract: The bonyads represent one of the fundamental changes brought to the Iranian environment by the 1979 Revolution. In this paper, we focus on the basic characteristics of these religious organizations, with an emphasis on their scope, basic characteristics, and position within the Iranian political and economic sphere. We analyse the basic roles of these foundations as well as the historical background of their establishment. We address their scope not only in terms of social, cultural or religious engagement in the country, but also their engagement in the international arena as part of the soft power foreign policy of the Islamic Republic of Iran.
Key words: Islamic Republic of Iran, Bonyad, Islamic Revolution, Islam
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Introduction

The issue of social justice is a topic of great emphasis in the Islamic milieu. Helping the underprivileged is framed within the Islamic principle of *sadaqa*, which is an umbrella term for charitable activity. In this sense, it is not only material and financial assistance, but also any act done with the good intention of helping those in need.[1] Religious organisations known as *waqf* (pl. *awqaf*) play an important role in this regard.[2] The present paper aims to provide a comprehensive view of the activities of the Iranian form of *awqaf* in the form of religious foundations known as *bonyad*. Their establishment took place in the immediate post-revolutionary period of the 1970s and 1980s and they now form an important part of the concept of stabilizing elements in the Iranian economy. The *bonyads* can be described as the best example of the interconnectedness of state and religious power in the Islamic Republic of Iran. Behind their formation was not only the desire to create a social safety net in the country, but also the way in which the theocratic regime has built a sphere of influence across Iranian society over many years. In this paper, we primarily employ qualitative methods based on the analysis of documents discussing these para-governmental organizational structures. In doing so, we draw primarily on foreign sources from authors who have long worked on Iranian realities or have direct experience of this environment. The primary aim of the paper is to characterize the *bonyads* not only in terms of their genesis and historical transformation, but also and above all in terms of their role both in the domestic political-economic sphere and in Iran's foreign policy sphere, where they play a significant role. From this perspective, two partial objectives have been set, namely, the analysis of the aforementioned role of the organizations in the domestic arena as well as in the foreign sphere.

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[1] ISLAMIC RELIEF (2024): Sadaqa.
[2] SAEIDI, A. A. (2004): The accountability of para-governmental organizations (bonyads): the case of Iranian foundations, pp. 482-483.

1 Social justice in Islamic republic of Iran

The interpenetration of religious elements in the social sphere is particularly visible in the role of religious taxes, along with the close coordination of practices and cooperation between the government and religious organizations aimed at eradicating poverty and improving the living conditions of socially deprived groups of the population.[3]

Religious tax, as one of the main pillars of the Islamic faith, forms an important part of the Iranian economy with a significant impact on the social sphere. This integral part of the Islamic perception of social justice is not only important from a religious point of view, but also acts to a large extent as a stabiliser of the economy and plays an important role in the redistribution of wealth, thus directly affecting the social status of the population. Islamic legal scholarship distinguishes several forms of religious tax. In the context of the Islamic Republic of Iran, we also consider two types of religious tax - khum and zakat - to be the most important, given the nature and extent of the funds raised.

A specific feature of the Shi'ite legal system is the approach to religious tax called khum, which is a 20 per cent tax on property. Although the khum used to apply exclusively to the spoils of war, the scope of this tax was later extended until it took the form of a tax on the value of a person's total property.[4] In the Shi'i and therefore Iranian environment, this tax also applies to acquired income, unlike Sunni legal schools which do not give khum a prominent position.[5] Khum, unlike zakat, is a one-time payment affair. In this sense, once the khum relating to a certain item has been paid, there is no need for a repeat payment in the following calendar year, and hence the obligation is fulfilled permanently.[6] Unlike zakat, the person responsible for collecting this tax is not the organisation but the spiritual leader - the mujtahid - and the funds collected should be directed towards wider development projects in the context of the protection of the Islamic religion.[7] Unlike zakat, which is supposed to be dedicated exclusively to people in need, according to Shi'ite tradition a certain portion of the khum tax belongs to the followers of the Prophet Muhammad - his blood relatives. In today's context, this is a narrow group of spiritual leaders.[8]

The second important form of religious tax is zakat. In socio-economic terms, the role of zakat as one of the five pillars of Islam is to ensure the redistribution of wealth and to prevent its excessive accumulation within a narrow group of people.[9] This sign of solidarity with weaker sections of the population applies only to those Muslims whose wealth exceeds a certain value threshold, which is referred to as nisab. Muslims who do not reach this level are exempted from paying zakat. Those eligible to receive funds from this religious tax can be divided into several target groups - the poverty-stricken, the unemployed, the physically disadvantaged, orphans, and families dependent on a breadwinner in prison. The way this religious tax is collected in the modern concept of Islamic economics varies from one Muslim country to another.[10] Although in the past, in the Shi'ite environment, zakat applied exclusively to selected types of metals (gold, silver), animals and crops, in the modern period its concept is broader in the sense

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[3] ALAEDINI, P. – ASFHRAFZDEH, H. R. (2016): Iran's Post-revolutionary Social Justice Agenda and Its Outcomes: Evolution and Determinants of Income Distribution and Middle-Class Size. In Economic Welfare and Inequality in Iran, pp. 16-17.
[4] NAMDAR. N. et. al. (2021): Developing A Mathematical Equation to Predict Khums and Zakat in the Iranian Economy. In International Journal of Zakat, pp. 47-48.
[5] JALILI, A. R. (2012): The Ethics of Tax Evasion: An Islamic Perspective. In The Ethics of Tax Evasion: Perspectives in Theory and Practice, p. 181.
[6] Ibid. p. 181.
[7] AL-SHIA (2024): A Brief Introduction to Zakat And Khums.
[8] NAQVI, S. M. H.: Explaining Khums and Zakat in Islam.
[9] CHOUDHURY, M. A. (2014): Principles of Islamic Economics. In Islamic Economics: Critical Concepts in Economics, p. 180.
[10] KURAN, T. (2014): The Economic System in Contemporary Islamic Thought. In Islamic Economics: Critical Concepts in Economics, pp. 154-160.

of acquired funds and property in general.[11] In the context of the Islamic Republic of Iran, the general level of zakat is set at 2.5% of a Muslim's total savings and assets.[12] Unlike in other Muslim countries, the payment of zakat is based on a voluntary basis and is a matter of spiritual conviction and moral level of each Muslim to whom this spiritual obligation applies.[13] Zakat is an important part of the Iranian economy with a significant impact on the social sphere and the status of materially disadvantaged groups. In the Iranian calendar year 1402 (March 2023-March 2024), approximately 26 trillion rials (USD 52 million) were collected under this religious tax. This amount was subsequently redistributed to purchase essential food for the needy population (80%) and for projects related to the development of Iran's underdeveloped areas.[14] Based on the statistics, it is possible to observe a gradual increase in the amount of zakat collected. In the year 1401 (March 2022-March 2023), 22.7 trillion Iranian rials ($45 million) were collected, which, according to the authorities, represents a 34% year-on-year increase.[15] In 2011, the Zakat Law was enacted in Iran. In this way, the collection of religious tax in Iran has become a state-led initiative, which can be seen as a further sign of the close link between political and religious issues in the country. Since 2004, the Imam Khomeini Relief Committee (IKRF) has played a key role in the collection of the religious tax.[16] Its important role within the social sphere as well as the role of religious charities, the so-called bonyads, is discussed in the next section of the paper.

2 Basic characteristics of religious foundations

The origins of the *bonyads* can be linked to the post-revolutionary period related to the unstable socio-economic situation in the country. Today, these foundations can be seen in the context of an example of the interconnectedness of the theocratic regime and the religious community in Iran. Following the overthrow of a monarchy that lasted for more than 2,000 years, Iranian government officials have sought to de-Westernize the country by moving away from the policies of *Shah Mohammad Reza Pahlavi*. *Bonyads*, as charitable organizations in their initial phase, are established for the purpose of redistributing the confiscated wealth of the *Shah* among the socially backward Iranian population.[17] Unlike *awqaf*, *bonyads* cannot be considered as purely apolitical organisations, spiritual in nature, since, as we argue in the following section, there is a certain level of overlap between these organisations and the ruling class in the country.[18] The organisations retain a degree of autonomy in that they are not directly controlled by the state and are classified as religious entities. On the other hand, although their activities are directed by spiritual leaders known as *ulama*,[19] leaders are appointed to their positions by Iran's supreme leader, *Ayatollah Ali Khamenei*.[20] At the same time, it is possible to detect a number of benefits that these organizations receive from the government. These include various types of tax benefits, eligibility for soft loans and also the large amount of funding that they receive from government institutions.[21] In doing so, their work is important from two main aspects, which we present in the following sections of the paper. Their role is

[11] AMINI, H. A. – RAEI, M. (2016): The government's right to tax from the viewpoint of Shia Jurisprudence.
[12] NAMDAR, N. et. al. (2021): Developing A Mathematical Equation to Predict Khums and Zakat in the Iranian Economy. In International Journal of Zakat, p. 46.
[13] PRESS TV (2021): Iran charitable body says its zakat receipts rose 34% in March-November.
[14] Teheran Times: Zakat collection rises 25% year on year.
[15] Teheran Times: Zakat collection rises 34% year on year.
[16] AFSHARI, Z. (2022): An Overview of Islamic Non-Banking Institutions (Inbfi) in Iran.
[17] MALONEY, S. (2015): Iran´s Political Economy since the Revolution, p. 122.
[18] Ibid, p. 481.
[19] SAEIDI, A. A. (2004): The accountability of para-governmental organizations (bonyads): the case of Iranian foundations.
[20] JONES, P. (2011): Succession and the supreme leader in Iran, p. 110.
[21] SUNE, E. (2019): The Role of Para-Governmental and Paramilitary Organizations in the International Political Economy of Iran, pp. 47-49.

important both at the domestic level, but also in the dissemination of revolutionary ideology to other countries as part of the country's foreign policy.

3 The role of bonyads on the domestic scene

The priority role of *bonyads* within the national area is to provide a platform for the redistribution of financial resources among disadvantaged groups. In this respect, they play an important complementary role to the government's social assistance scheme.[22] However, their remit is rather broader and they also focus on the role of spreading Islamic awareness and Iran's Islamic culture.[23] At the same time, foundations represent an important stabilising element in terms of the country's economic performance. They provide a large number of jobs and account for around five per cent of the country's total GDP.[24] In some cases, this figure is quoted as high as 30%.[25] The table below gives an overview of the most important religious institutions and their areas of activity in the current Islamic Republic of Iran.

Table 1 Overview of bonyads

Name	sphere of competence
Imam Khomeini Relief Foundation	social sphere
Bonyad-e Panzdah-e Khordad	social sphere
Bonyad-e Shahid	social sphere
Bonyad-e Mostazafan	social sphere
Sazman-e Tablighat-e Islami	religious sphere
Majma'-e Jahani-ye Taqrib Beyn-e Mazaheb-e Eslami	religious sphere
Bonyad-e Resalat	religious sphere
Bonyad-e Sa'adi	cultural sphere
Farabi Foundation	cultural sphere

Source: Own elaboration according to Jenkins, W. B.: Bonyads as Agents and Vehicles of the Islamic Republic's Soft Power. In Iran in the world: President Rouhani's foreign policy. 2016. p. 157.

One of the most important religious foundations established in the post-revolution is *Bonyad-e Mostazafan*. The basic task of this organization is the social redistribution of the property that was confiscated after the deposed *Shah*.[26] The Foundation has a societal significance in contemporary Iran, particularly in terms of job creation as well as its initiatives in various areas of the Iranian economy. *Bonyad-e Mostazafan*, which can be classified as one of the largest organisations of its kind, is involved in sectors such as food, agriculture and tourism in addition to social assistance.[27] *Imam Khomeini Relief Foundation (IKRF)* can be characterised as a second revolutionary institution with the aim of supporting disadvantaged populations. Its remit is to provide funds to around six million citizens through cooperation with the regime.[28] Within its remit, it is responsible for the collection of the religious tax - *zakat*, which is subsequently provided to the population in need, especially to the elderly population or families with war veterans.[29] In 1979, the *Bonyad-e Shahid Foundation* was established. Its

[22] ESFAHANI, H. S. (2005): Alternative public service delivery mechanisms in Iran.
[23] JENKINS, W. B. (2016): Bonyads as Agents and Vehicles of the Islamic Republic's Soft Power, p. 157.
[24] Ibid, p. 501.
[25] MOTLAGH, R. H. – BABAEE, A. – MALEKI, A. – ISAAI, M. T. (2020): Innovation policy, scientific research and economic performance: The case of Iran, p. 397.
[26] MALONEY, S. (2015): Iran´s Political Economy since the Revolution, pp. 121-122.
[27] BAUM, T. G. – O´GORMAN, K. D. (2010): Iran or Persia: What´s in a Name ? The Decline and Fall of a Tourism Industry, p. 179.
[28] AMETA, D. (2015): Social Protection and Safety Nets in Iran, p. 9.
[29] IMAM KHOMEINI RELIEF FOUNDATION (2024): Imam Khomeini Relief Foundation.

activities are aimed at helping people associated with the revolutionary period. This includes, in particular, the survivors of the victims of these events, who receive assistance through this organisation in the form of social benefits in various areas such as health, education or in terms of better access to employment opportunities.[30] In addition to social aid, it is possible to define other foundations that focus their activities on the religious or cultural sphere. Examples include the Islamic propagation organisation *Sazman-e Tablighat-e Islami*, the *Majma'-e Jahani-ye Taqrib Beyn-e Mazaheb-e Eslami*, which focuses on bringing together different Islamic law schools, and the *Bonyad-e Resalat*, which is dedicated to the propagation of Islamic revolutionary ideology. Culturally, these include *Bonyad-e Sa'adi*, promoting Persian language and literature, and the *Farabi Foundation*, promoting Iranian cinema.[31]

4 Religious foundations in the context of foreign policy

The activities of the organisations, which receive approximately 58% of the Islamic Republic of Iran's state budget, are not focused exclusively on the domestic environment. On the contrary, they are an important instrument of the IIR's soft power foreign policy strategy and are also engaged in other countries in the predominantly Middle Eastern region. Their position in this respect is coordinated with other forces promoting the export of Islamic revolutionary ideology, such as the *Iranian Revolutionary Guards Corps (IRGC)*. In addition to their economic activities, they thus contribute to the creation of an Islamic education based on the principles of *Shi'ite* Islam abroad.[32] An example is the *Imam Khomeini Relief Foundation*, which also focuses its activities on helping disadvantaged *Shia* groups living in countries such as Afghanistan, Iraq, Lebanon, Pakistan, Syria, Azerbaijan and Tajikistan.[33] Another example is the work of *Bonyad-e Shahid*, which, through its cooperation with Lebanon's Hezbollah, has been heavily involved in education or health care in Lebanon. Iranian religious organisations have also been involved in neighbouring Iraq following the ousting of *Saddam Hussein* and in the Gaza Strip, where they provide social assistance to the Palestinian population.[34] It is the foreign policy engagement of the *bonyads*, influenced by the theocratic ruling regime, that constitutes one of the fundamental differences between the purely religious a*wqaf* and *bonyad* components. The cooperation with the IRGC and the direct links to Iran's supreme spiritual leader speak to the importance of the role these religious organisations have in exporting Islamic revolutionary ideology to neighbouring states. In terms of the links between the IRGC and the *bonyads*, the fact that a significant number of the leaders of these organisations have previously worked in IRGC structures is important. At the same time, there is coordination between these para-governmental organisations and the *Revolutionary Guards*, particularly in the economic field.[35] From a geographic perspective, it is clear that the aid countries in question are primarily regional actors, which are home to a significant portion of the *Shia* community in the region and, from this perspective, represent an important object of foreign policy interests of the Islamic Republic of Iran. The protection of *Shia* minorities is a priority for the theocratic regime, and the concept of exporting the Islamic Revolution beyond Iran's borders is also being developed in this way.

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[30] AKHAVI-POUR, H. – AZODANLOO, H. (1998): Economic bases of political factions in Iran, p. 81.
[31] JENKINS, W. B. (2016): Bonyads as Agents and Vehicles of the Islamic Republic's Soft Power, p. 157.
[32] BIBI, M. – ABBAS, S. Q. (2020): Iran's Foreign Policy Towards Middle East: a Case of SmartT Power, pp. 93-34
[33] IMAM KHOMEINI RELIEF FOUNDATION (2024): Imam Khomeini Relief Foundation.
[34] MARÉCHAL, É. (2022): The Islamic Republic of Iran's Soft Power An Analysis of the Islamic Culture and Relations Organization's Activities, pp. 6-7.
[35] COVILLE, T. (2017): The Economic Activities of the Pasdaran.

Conclusion

Iranian religious organizations also known as *bonyads* can be characterized in the following points:

1. they are organizations of a religious nature in which the religious circles - ulama - have a dominant position,

2. it is clearly possible to detect their connection with the ruling class and the spiritual leader of the country - *Ayatollah Ali Khamenei,*

3. a significant part of their activity is financed through state budget expenditure, but also through voluntary contributions through a religious tax - *zakat,*

4. they retain a certain degree of autonomy, although their links to the ruling class may belie this claim, particularly as the *bonyads* are granted various forms of privileges, mainly of an economic nature

5. they form an important part of the Iranian economy and a stabilising element in the country's social assistance scheme,

6. although they are largely foundations, and non-profit organisations are able to generate their own profits as part of their activities

7. they are not exclusively involved in the social field, but are also active in the religious and cultural fields

8. they are an important part of the concept of exporting Islamic revolutionary ideology beyond Iran's borders.

In the post-revolutionary period, the primary purpose of the formation of religious organizations with overlap with the Iranian ruling regime was to redistribute the former monarch's wealth among the Iranian population. Nowadays, it is possible to detect a broader sphere of action of these foundations as well as an expansion of the sphere of societal influence in the country as a whole. In this regard, there are mainly 3 main spheres. The first one is the importance of *bonyads* in terms of establishing social justice in the country related to the social support scheme through which funds are redistributed annually among the population in a state of need. The second sphere relates to the dissemination of Islamic revolutionary ideology, in which the bonyads play an important role not only at national level but also in the foreign policy implications of these ideas. In this respect, they are an important instrument of soft power in the hands of the *Iranian Revolutionary Guards Corps* (IRGC), but also other related organisations operating beyond Iran's borders. Lastly, the importance of these foundations is linked to the economic performance of the country, as their activities contribute to the country's GDP and provide a number of employment opportunities within the Iranian population.

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CURRENT SOCIO-ECONOMIC DEVELOPMENT IN THE REPUBLIC OF SOUTH AFRICA

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Abstract: South Africa is without a doubt one of the most industrialized economies and a driving force behind economic expansion in the Sub-Saharan region. For this reason, the paper provides a short overview of its current socio-economic development. South Africa is an example of an economically disintegrating state since the removal of the regime of Apartheid in the year 1994. We describe the steps that led to such development, starting around the year 1994, but we have also tried to describe how the tendencies occurred in the last 30 years under the rule of the African National Congress (ANC). We apply methods of analysis, deduction, synthesis and comparison and use data from relevant scientific work or statistical databases of international organizations.
Keywords: Republic of South Africa, elections 2024, ANC, blackouts, Orania
JEL: N97, O10, Z10

Introduction

The Republic of South Africa (RSA) started its way as a free state after World War II. However, the created of Apartheid was focused towards the needs of the main minority white population. The economic discrepancies have not been minimized within the multi-racial society as such, but moreover supported by the then governments. After the election in 1994, South Africa went towards an unknown space of economic freedom, socio-economic initiatives that were unique within the African continent, as well as reconciliation with the aim of creating a so-called rainbow nation. Since the very first post-Apartheid election in 1994, the ANC has always gained such support that it allowed the party to rule independently, without any need for a coalition party. The situation has changed just recently, when the ANC fell below the 50% mark of the gained votes during the 2024 general election.[1] It creates a completely new situation.

On the other hand, we will try to describe several possible vectors of development that might be applied within parts of South-African society. The whole issue regarding the development of South Africa after the election year 1994 and removal of the Apartheid system is a very complicated issue. Most of the authors fully agree and support the multiracial development of the country.[2] However, Ruiters (2020) states that the so-called non-racialism of the post-Apartheid society of South Africa only deepens the negative development, where the majority still lacks the economic power it deserves, according to the author.[3] Regarding the

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issues of electricity demand and the blackout problems caused by the corruption of Eskom as the state's main electricity provider, we show the example of Eberhard [4] or Nkosi and Dikgang.[5]

To fulfill the main goal – provide a short overview of current socio-economic development in South Africa – we simultaneously present trends in the country's economic development and briefly discuss selected problems of political development. We point to long-lasting economic problems and challenges associated with slow economic growth or high unemployment. The paper applies the methods of analysis, deduction, synthesis and comparison. The data of relevant scientific contributions and statistics of international organizations are used.

1 Political and economic development after 1994

One of the main steps towards the change was the 1996 Constitution of the Republic of South Africa. It defines South Africa as *"one, sovereign, democratic state"*[6] based on principles of human rights and established the newly created provinces. And the additional creation of local governments was a key change too. With a clear path towards liberal democracy.
During the next elections up to the year 2024, a lot of reforms have been passed. Not only in the public sector,[7] but in general, in the socio-economic life of South Africa. It needs to be mentioned that the National Party has been in charge of governing from 1948 to 1994 with the whole developed system of racial segregation that was applied to the whole state as such. Besides the whole law package, a full reconciliation was needed that dealt with the time period 1960–1994 in the form of such a commission.[8]

With the arrival of a democratic regime in 1994, apartheid policies and international sanctions were abolished, which became an impetus for the growth of the national economy. In general, the establishment of democracy was accompanied by the introduction of reforms that reflected the then popular economic development on the African continent based on the principles of neoliberalism. The inflow of capital into the mining and processing industries was renewed. This period became important for the formation of the service sector, especially financial services, which showed a 40% percent growth rate for the entire decade. In 1996, the Growth, Employment and Redistribution program (GEAR) was adopted and neoliberal principles of free market and supply-side economics were applied. Liberalization also significantly affected foreign trade. By joining the World Trade Organization (WTO) in 1995, the Republic of South Africa (RSA) reduced import duties, eliminated some non-tariff barriers and export subsidies. Thanks to the reforms, the government managed to reduce inflation and return the original growth of the national economy in the period 1994–1999 to an average annual level of 2.6%. However, the resumption of economic growth has failed to raise the level of real per capita income, which has declined by 0.4% per year due to rapid population growth.[9]

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[4] EBERHARD, A. (2024): The Political Economy of Power Sector Reform in South Africa. [Online.] In *Stanford Institute for International Studies*, 2004. [Cited 3.6.2024.] Available online: https://wits.worldbank.org/wits/wits/witshelp/Content/Utilities/e1.trade_indicators.htm

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In 2001–2007, the South African economy showed a relatively high annual growth rate of 4%. However, the economic growth can not be compared to the success of other developing countries of the BRICS group. The problem is the high level of unemployment – 30-35% including the unemployed who have stopped looking for work – caused by the high supply of labor and insufficient creation of new jobs. With the advent of the global financial and economic crisis in 2009, the GDP showed a decrease of 1.5%. Nevertheless, South Africa's national economy recovered in the following decade, although the GDP growth rate remained significantly lower than in the pre-crisis period. On average, the annual rate of economic growth in the period 2010–2018 did not even reach 2%.

Currently, the Republic of South Africa, with a gross domestic product of 6,700 US dollars per capita, is a developing country belonging to the group of states with a higher middle income. In 2022, the absolute GDP of the country was at the level of 405 billion US dollars, which represents up to one fifth of the economy of sub-Saharan Africa.[10]

This South African state is clearly the engine of the economic growth of the entire region. Since 2013, the economic growth of Africa's most industrialized economy has not exceeded 2%, and in 2018 it did not even reach 1%, which represents the longest cycle of stagnation since 1945. One of the factors slowing down economic growth is unstable electricity supplies, which hamper the growth of the financial sector, telecommunications, and mining industries. The problem of the insufficient supply of electricity is the state company Eskom, whose debt in 2019 exceeded the threshold of 8% of GDP.[11]

Eskom is one of the few state-owned companies that did not undergo extensive privatization in the second half of the 1990s. Also adding to the deepening of the recession was the spread of the Ebola virus, which resulted in a loss of foreign exchange earnings of US$ 2 billion during the period 2014–2016.

Following his election as president in 2018, Cyril Ramaphosa pursued an economic growth plan that included more deregulation and limited privatization of the domestic market in the energy and transportation sectors. The main goal of the new president was to ensure annual economic growth at the level of 2.3% and create more than 1 million jobs. It should be noted that, with an unemployment rate of more than 30%, the Republic of South Africa is among the countries with the largest recorded share of the unemployed population in the world. The President's development program also includes a tender for the sale of the railway, port and pipeline infrastructure operator.[12]

2 Corruption perception and energy sector

Another problem, as in almost every (African) developing country, is the problem of corruption and the way of tackling it. RSA achieved only 41 points on the so-called 2023 Corruption Perceptions Index-CPI (source by Transparency International).

CPI in South Africa, considered during 1996 to 2023, has achieved the highest point (in a positive sense) in the form of 56.80 Points in 1996 and the record low of 41.00 Points in the year 2011. The scale was defined as follows: From 0 (highly corrupt country) up to 100 (country clean of corruption). With every election, corruption and the fight against it strongly echoed in

[10] WORLD BANK (2024): World Bank Development Indicators. [Online.] In *World Development Indicators*, 2019. [Citované 10.06.2024.] Dostupné na internete: https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=ZA&name_desc=false

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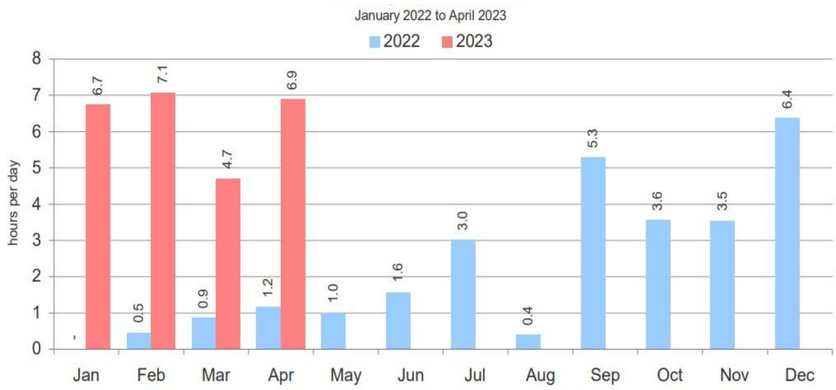
the campaign, but as we see on the graph, the development has been without any significant positive improvement throughout the years.

Figure 1: South Africa Corruption Index between the years 1996-2023 (Index points)

Source: South Africa Corruption Data (2024).

Energy production in South Africa is closely connected with Eskom, created in the year 1923. Till the fall of Apartheid in 1994, there was no need to reform the domestic energy market according to the wishes of RSA's growing population. Thus, many energy projects have been either abandoned[13] or not completed and it simply remained a non-finished projects.[14] Eskom is often accused of restricting economic growth due to unstable electricity supplies. In the production of electricity, coal, its synthetic products or imported oil are used. These components of the energy mix make up 90% of all electricity production.[15] Also in operation is the only nuclear power plant in Africa, located near Cape Town. The country's hydropower potential is limited by several dams on the Orange River.

Figure 2: Monthly Blackout Rate in South Africa



Source: Business Tech (2024).

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[13] MARAIS, L. et al. (2022): Mine closure, social disruption, and crime in South Africa. In *Geographical Journal*, Vol. 188, No. 3, pp. 383-400. https://doi.org/10.1111/geoj.12430

[14] POLLET, B. G. – STAFFELL, I. – ADAMSON, K. (2015): Current energy landscape in the Republic of South Africa. In *International Journal of Hydrogen Energy*, Vol. 40, No. 46, pp. 16685-16701. https://doi.org/10.1016/j.ijhydene.2015.09.141

[15] RITCHIE, H. – ROSER, M. (2020): „Energy“. [Online.] In *Our World in Data*, 2020. [Citované 10.06.2024.] Dostupné na internete: https://ourworldindata.org/energy/country/south-africa

The blackouts might be considered either as the sign of incompetent local as well as central governments on the other side, drastic increase of electricity demand and the non-sufficient development of in electricity grid might be a combination of factors, where only a partial blackout be considered a solution, how not to break the electricity delivery completely and with at least partially delivery towards all customers in the whole RSA.[16] Another way of dealing with such problems is still unsolved issue with very unclear vector of development.

3 Orania a response to today's RSA?

As a response to nowadays development, rising crime and economic problems, in the current Northern Cape Province, shortly after the fall of Apartheid, there came the development of an Afrikaner culture-based self-governed entity. Acting within the constitution of RSA, It is currently represented by 3,000 white residents (mostly of Afrikaans origin) located on an area of less than 10 km^2.[17]

The whole town is self-governed, restricting the settling down of other people according to their own rules of community. With some specific economic activity (specific IT products) but generally active as an agricultural entity.

The idea of Orania might be described as strongly rooted in the Afrikaner heritage with a strong will to act on one hand in accordance to the RSA constitution, on the other hand, also with a wish to determine their own way to prosperity. The topic is still very complicated and, despite the fact that Orania has existed for 30 years, the path toward enlargement is unclear, and therefore it is very hard to describe Orania as a true alternative to the current RSA society, also due to the lack of security in RSA and the situation in, that after the election 2024 does not help to predict next steps of the new government.

Conclusion

We assume that the Republic of South Africa and its society is still deeply split according to race, income, education. After the 1994 election, economic success for all has not happened and we, say, that the country of the "First world" prior to 1994, with uneasy heritage of Apartheid, became a problem child.

In recent years, as we described in the example of Eskom, even one of the richest countries on the African continent regarding natural resources is in reality not able to solve even the basic energy security issues.

We hope that the examples of former Rhodesia (nowadays Zimbabwe) might be sufficient warning to not follow its path. RSA is unfortunately following a similar route as described in our article, and we still hope that RSA will avoid it. Elections in 2024 will be a tipping point, where only the possible denying of several economic "experiments" like drastic land reform or expulsion of farmers (mainly members of white minorities) will lead to the tranquilization of society and the economy and not vice versa. We also tried to avoid in our paper any further predictions.

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EXPLAINING CROSS-COUNTRY DIFFERENCES IN MALE-FEMALE WAGE GAPS IN EUROPE

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Abstract: This article focuses on gender wage gaps across European countries and examines the socioeconomic factors contributing to these disparities. We first describe the evolution of gender wage gaps based on aggregate statistics from four waves of the Structure of Earnings Survey between years 2006 and 2018. Using linear regression models, we assess the association of selected socioeconomic factors with male-female wage gaps for various subgroups of employees. The results indicate statistically significant relationships for the following indicators. Gender wage gaps are wider if the average age of women at childbirth is lower, if paid maternity leave is available for a longer period than 120 days, if formal childcare services are less available and in case of lower employee coverage by labor unions.
Keywords: gender wage gap, labour market, European Union
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Introduction

Since time immemorial, women and men have had different social and political status. In the labour market, we observe this problem through the pay gap between men and women. Despite improvements in the status and rights of women in recent decades, we observe that in countries across Europe, women still earn less than men. Women hold management positions less often and do a higher percentage of unpaid work. Understanding how the gender pay gap arises helps us to tackle the problem. Addressing this problem can help women with their financial stability, relieve them of an excessive share of unpaid work and offer them career opportunities outside their gender stereotypes.

The 1990s was the decade when women in developed countries began to achieve higher education at a higher rate than men, and women's studies increasingly began to focus on science. Women's performance in school also improved, the gap with men in mathematics narrowed considerably, and women even outperformed men in reading. Women increasingly found careers outside traditionally female occupations, for example as lawyers, scientists, professors or managers. For the first time, we are seeing a greater number of women who wanted to combine a successful career with the choice to have a family. In this period, the levelling of pay inequalities has happened at a much more moderate pace compared to the previous decade. Women in the United States during this period earned 70 cents of every man's dollar.[1] In this period, we find several female political leaders in European countries. Changes are taking place,

[1] GOLDIN, C. (2021): Career and Family: Women's Century-Long Journey toward Equity, p. 158.

particularly in the area of family policies, and in the Scandinavian countries, for example, men are being given the right to parental leave in the same way as women.[2]

In recent years, we have seen that discrimination is no longer a major contributing factor to gender pay inequalities. However, this does not mean that women do not face discrimination, prejudice or sexual harassment in the workplace.[3] Women today are not limited by marital barriers, and their opportunities for work in male-dominated, higher-paying industries are the same as those of men. But we see that the gender pay gap persists. Among graduates entering the labour market, the wage gap is relatively small, but is widening over time. The gender pay gap for the older part of the population can be up to five times larger than for the younger part of the population.[4] So what causes the pay inequality between men and women today?

The aim of this article is, first, to map the main trends in gender pay inequalities in European countries. Second, to find out what socio-economic factors are related to inequalities between men and women in the labour market. Third, in which direction these gaps have been evolving in recent decades.

1 Potential Factors Explaining Male-Female Wage Gaps

The factors influencing gender pay inequalities are not isolated, but are a complex web of socio-economic factors. Understanding the main driving forces of gender pay inequalities is essential for finding effective policy solutions to the problem.

Labour market participation is an important factor in understanding how women's wages evolve, for two reasons: firstly, because receiving a wage is linked to employment, and secondly, because women's attachment to the labour market is a key factor influencing the gender wage gap.[5]

According to economic theory, one would expect an increase in female labour force participation to have an impact on everyone's wages. Increasing labour supply can cause wages of both men and women to fall, and the impact may be more pronounced for women, widening the gender wage gap. The impact of increased female participation on wages depends on how easily men and women can substitute each other in the labour market. Bhalotra and Fernández (2018)[6] argue that gender pay inequalities grow with women's participation in the labour market in sectors where manual and routine work is carried out and where women are not suitable substitutes for men. Conversely, gender pay gaps have been declining in higher-paid sectors that require more abstract, non-manual job skills. In such non-manual positions, women more easily replace men.

Women's labour market participation varies considerably across countries. This may be influenced by factors such as religion or family and tax policies.[7] Goldin (1995)[8] considers different stages of economic development of countries as part of the explanation. She speaks of a U-shaped female participation, where women's labour force participation is high in the early stages of a heavily agricultural-oriented economy, declines sharply later in the transition to an industrial economy, and rises again in more developed countries with a more developed service sector.

[2] REGULSKA, J. - SMITH, G. B. (2012): Women and Gender in Postwar Europe: From Cold War to European Union, p. 27.
[3] GOLDIN, C. (2021): Career and Family: Women’s Century-Long Journey toward Equity, p. 4.
[4] POLACHEK, S. (2019): Equal pay legislation and the gender wage gap, p. 2.
[5] BLAU, F. – KAHN, L. (2017): The Gender Wage Gap: Extent, Trends, and Explanations, p. 807.
[6] BHALOTRA, S. – FERNÁNDEZ S. M. (2018): The Distribution of the Gender Wage Gap, p. 1.
[7] WINKLER, A. (2022): Women’s labor force participation.
[8] GOLDIN, C. (1995): The U-Shaped Female Labor Force Function in Economic Development and Economic History, p. 63.

Trade unions are also a frequently discussed factor affecting gender equality. Historical evidence suggests that men used to join trade unions more often than women.[9] Today, however, this difference is not so significant and about 46% of union members are women.[10] Blanchflower a Bryson (2003)[11] found that the pay advantage of union members over other employees is approximately 17-18%. They also pointed out how unions can help their members to avoid downward pressures on wages from the employer or how unions are significant in protecting the most vulnerable employees, including women.

Education is another obvious contributing factor. As has already been mentioned above, for many decades women had not acquired the same level of education as men.[12] Today, in most developed countries, and in some less developed countries, women are better educated than men.[13] Achieving higher education is of great importance for women in relation to their economic status. Their education has a direct impact on their choice of employment and career development.[14] England, Gornick a Shafer (2012)[15] argue that women's labour market participation increases with increased education. Women in the highest-educated group are two to six times more likely to enter the labor force compared to women in the low-educated group. They also point to smaller wage gaps for women with higher education.

For women's higher education, it is important to keep track of their field of study. This is because significant differences in the field of study between men and women are observed. Women are more likely to choose the humanities, which are more likely to be associated with lower-paying jobs, and men are more likely to choose science and engineering fields of studies, which are associated with higher-paying jobs.[16]

However, increasing women's education has important effects on the rest of the population as well. More educated mothers have a positive impact on better child health, reduced infant mortality, increased education of the next generation, and higher female education improves economic growth in the country in general. All of this improves opportunities for women and their equality in their families as well as in the labour market.[17]

Differences in participation, educational choices and other factors affecting women cause differences in the jobs held by women compared to men. This labour market condition is called gender segregation of the labour market, where certain segments of the labour market are separated on the basis of gender. The overall gender segregation of the labour market can be divided to vertical and horizontal segregation.

Horizontal gender segregation refers to the separation of certain occupations, industries or sectors on the basis of gender. Men and women choose or are forced to choose different types of occupations, such as male programmers and female teachers. This creates typically female and typically male occupations, often belonging to different segments of the economy. Vertical gender segregation means that within the same occupational category, men and women are often found in different levels of jobs, such as female nurses and male doctors. This means that men are more likely to hold higher positions, compared to women. This is an unequal distribution of responsibilities and importance of job positions between the sexes. From a cross-

[9] BLAU, F. – KAHN, L. (2017): The Gender Wage Gap: Extent, Trends, and Explanations, p. 796.
[10] BLAU, F. – WINKLER, A. (2018): The Economics of Women, Men, and Work, p. 180.
[11] BLANCHFLOWER, D. – BRYSON, A. (2004): What effect do unions have on wages now and would Freeman and Medoff be surprised? p. 28.
[12] GOLDIN, C. (2021): Career and Family: Women’s Century-Long Journey toward Equity, p. 5.
[13] GANGULI, I. – HAUSMANN, R. – VIARENGO, M. (2014): Closing the gender gap in education: What is the state of gaps in labour force participation for women, wives and mothers? p. 173.
[14] BLAU, F. – WINKLER, A. (2018): The Economics of Women, Men, and Work, p. 471.
[15] ENGLAND, P. – GORNICK, J. – SHAFER, E. (2012): Women's employment, education, and the gender gap in 17 countries, p. 20.
[16] FRANCESCONI, M. – PAREY, M. (2018): Early gender gaps among university graduates, p. 69.
[17] BLAU, F. – WINKLER, A. (2018): The Economics of Women, Men, and Work, p. 471.

country perspective, labour market segregation is more pronounced in countries where women are more equal.[18] Goldin (2021)[19] however adds that eliminating gender segregation would eliminate about one-third of the gender wage gap.

As a further very important socioeconomic factor driving current gender pay inequalities is related to motherhood. Following the birth of their initial child, women typically experience a decline in their job status and the probability of attaining managerial positions relative to men.[20] Mothers, as mentioned earlier, have traditionally been and still are responsible for a significantly larger share of family responsibilities.[21] Further, O'Neill and O'Neill (2006)[22] point to zero pay inequalities between men and women aged 35-43 with equal family responsibilities. Redmond and McGuinness (2019)[23] suggest that men are more likely to take a job if it offers favourable financial benefits and better pay, while women are more likely to prefer other non-financial benefits of work, such as flexibility, job security, proximity of the job to home, and so on. O'Neill & O'Neill (2006)[24] even suggest that women are twice as likely to work in the nonprofit sector, which is more likely to offer flexible hours and more frequent part-time work opportunities. A negative impact on job choice and career-building opportunities has also been observed because of the larger share of unpaid work that women do.[25]

Several authors also attribute much of the existence of gender pay inequalities to differences in work experience and hours worked that result from intermittent labour market participation, much of which is due to motherhood.[26,27,28]

According to Kleven, Landais a Søgaard (2019),[29] the impact of motherhood on women's labour market activity can be divided into two phases. The first is the pre-baby period, when women are already making decisions based on the expectation of motherhood in the future, which influences their choice of education and career path. The second phase is the post-childbirth period, when women change the number of hours they work, the occupation or the sector in which they work in response to their acquired maternity responsibilities.

After the birth of a child, mothers' labour market activity may depend on the different family policies and parental benefits of a given country. Maternity and parental leave are forms of employment leave that are linked to the period of caring for newborn or young children. Their length and the amount of financial compensation vary across countries. For example, maternity leave in the US is only 12 weeks without financial compensation and in Sweden parental leave is offered, which men can take as well as women, for 12 months with 80% compensation of their salary. Although parental leave is offered to both parents in many

[18] BLACKBURN, R. M. et al. (2002): Explaining gender segregation, p. 513.
[19] GOLDIN, C. (2021): Career and Family: Women's Century-Long Journey toward Equity, p. 4.
[20] KLEVEN, H. – LANDAIS, C. – SØGAARD, J. E. (2019): Children and Gender Inequality: Evidence from Denmark, p. 181.
[21] BLAU, F. – WINKLER, A. (2018): The Economics of Women, Men, and Work, p. 468.
[22] O'NEILL, J. – O'NEILL, D. (2006): What Do Wage Differentials Tell Us about Labor Market Discrimination? p. 236.
[23] REDMOND, P. – MCGUINNESS, S. (2019): Explaining the Gender Gap in Job Satisfaction, p. 4.
[24] O'NEILL, J. – O'NEILL, D. (2006): What Do Wage Differentials Tell Us about Labor Market Discrimination? p. 319.
[25] REICH-STIEBERT, N. - FROEHLICH, L. – VOLTMER, J-B. (2023): Gendered Mental Labor: A Systematic Literature Review on the Cognitive Dimension of Unpaid Work Within the Household and Childcare, p. 475.
[26] ANGELOV, N. – JOHANSSON, P. – LINDAHL, E. (2016): Parenthood and the Gender Gap in Pay, p. 545.
[27] KLEVEN, H. – LANDAIS, C. – SØGAARD, J. E. (2019): Children and Gender Inequality: Evidence from Denmark, p. 181.
[28] SPIVEY, C. (2005): Time off at What Price? The Effects of Career Interruptions on Earnings, p. 119.
[29] KLEVEN, H. – LANDAIS, C. – SØGAARD, J. E. (2019): Children and Gender Inequality: Evidence from Denmark, p. 184.

countries, it is disproportionately taken up by mothers.[30] Baker and Milligan (2008)[31] observed a positive effect of parental leave on women's continuity of employment. The main reason they cite is that parental leave had the effect of returning women to employment instead of leaving the labour market altogether as was the case in the past. Also, instead of moving into more flexible employment, women take longer parental leave and later return to their original full-time jobs, thus not limiting the number of hours worked in the long term. Despite these positive effects, maternity and parental leave has a negative impact on women's wages.[32] Women are literally paying the price for too much parental leave, as the time spent out of work negatively affects their later earnings and career progression opportunities.[33]

Other family policies can also influence women's labour market decisions. In developed countries, the most common policies are paternity leave, the right to work part-time, child allowances and pre-school facilities. Although such policies help to increase women's participation in the labour market, they appear to directly help reinforce horizontal labour market segregation and therefore often have a negative impact on gender pay inequalities.[34]

Without equalizing the gender division of labour, as long as women have the main responsibility for caring for the home and family, and as long as men have the main responsibility for earning an income, there will be clear constraints on narrowing the gender pay gap.[35] The gender wage disparity arises from differences in career progression, which, in turn, stem from unequal dynamics within couples.[36]

2 Methodology

To answer our research question, which is to explain cross-country differences in male-female wage gaps in Europe, we apply regression analysis. Our basic regression equation explains the dependent variable of gender wage gaps, y_{it}, by several explanatory variables included in vector $\boldsymbol{X_{it}}$ of size *k*, where *i* indexes countries and *t* is the year index. The full list of countries and explanatory variables considered can be found in the Data section below. As for a general specification of the regression equation, we can write it in the following form:

$$y_{it} = \alpha_0 + A_1 X_{it} + u_{it} \tag{1}$$

where u_{it} is an independent and identically distributed disturbance term. We use the ordinary least squares (OLS) method to estimate the intercept α_0 and coefficient vector A_1 comprising *k* slope coefficients associated with the explanatory variables. The data sample consists of panel data of more than 30 countries observed in four different years with gaps. Therefore we can assume that standard errors will be correlated within each country. To estimate the standard errors of the coefficients more appropriately, we assume clustering of these errors by country, which will provide more reliable estimates of the statistical tests of significance for the individual coefficients.

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[30] BLAU, F. – WINKLER, A. (2018): The Economics of Women, Men, and Work, p. 436.

[31] BAKER, M. – MILLIGAN, K. (2008): How Does Job-Protected Maternity Leave Affect Mothers' Employment?, p. 655.

[32] THÉVENON, O. – SOLAZ, A. (2013): Labour Market Effects of Parental Leave Policies in OECD Countries, p. 4.

[33] CABEZA, M. – BARGER JOHNSON, J. - TYNER, L. (2011): The Glass Ceiling and Maternity Leave as Important Contributors to the Gender Wage Gap, p. 73.

[34] MANDEL, H. – SEMYONOV, M. (2005): Family Policies, Wage Structures, and Gender Gaps: Sources of Earnings Inequality in 20 Countries, p. 949.

[35] DANIELOVÁ, K. – LAUKO, V. (2015): Rodový rozdiel miezd a disparity v odmeňovaní v okresoch Slovenska v období 2001 – 2014, p. 198.

[36] GOLDIN, C. (2021): Career and Family: Women's Century-Long Journey toward Equity, p. 5.

3 Data

The dependent variables (y_{it}) for the purpose of our work were created using publicly available databases on the Eurostat website. We obtained various data on male and female wages from the aggregate database derived from the Structure of Earning Survey (SES). Data on wages in European Union countries, candidate countries and European Free Trade Association countries are available. For the purpose of this paper, we selected data from 31 countries,[37] which we observed over four years, namely 2006, 2010, 2014 and 2018. Using male and female salaries obtained from the SES, we constructed variables describing the gender pay gap. We put the average salaries of men and women for each country, occupation, industry or other group, and for each of the four years observed separately, into a ratio and multiplied by 100 for easier interpretation of the results (y_{it} = women's salaries/men's salaries *100). This produced the dependent variables describing the gender pay gap. A more detailed description of what salaries we used to calculate each dependent variable is described in Table 1. We also differentiate dependent variables by labels A, M or H, which refer to annual (A), monthly (M) or hourly (H) wages in the calculation. Finally, the list and definition of all explanatory variables ($\boldsymbol{X_{it}}$) considered are presented in Table 2.

Table 1: Dependent variables

Name	*Detailed specification*
fulltime	Salaries of full-time staff.
industry	Wages and salaries of employees in manufacturing and construction (NACE B-F).
services	Wages and salaries of employees working in the service sector (NACE G-S_X_O).
managers	Wages and salaries of legislators and executives (ISCO 1).
professionals	Wages and salaries of specialists (ISCO 2).
clerks	Wages and salaries of administrative and clerical staff (ISCO 4).
craft	Wages and salaries of skilled workers and craftsmen (ISCO 7).
operators	Wages and salaries of operators and assemblers of machinery and equipment (ISCO 8).
elementary	Wages and salaries of auxiliary and unskilled workers (ISCO 9).
nonmanual	Wages and salaries of workers in non-manual occupations (ISCO 1-5)
manual	Wages and salaries of workers in manual occupations (ISCO 7-9).

Note: NACE is the standard statistical classification of economic activities in the European Community. ISCO stands for the International Standard Classification of Occupations of the International Labour Organization (ILO).

[37] Namely Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Table 2: Explanatory variables

Name	*Detailed specification*	*Source*
Education level 3-8	Difference in the percentage of women and men (female-male) aged 15-64 who have attained higher secondary, post-secondary non-tertiary or tertiary education.	Eurostat
Active persons	Difference in the percentage of women and men (female-male) aged 15-64 participating in the labour market.	Eurostat
Fertility rate	The total fertility rate of the population (average number of children born to a woman during her lifetime).	Eurostat
Age at childbirth	The average age of women at childbirth.	Eurostat
Paid maternity leave	Binary variable expressing the duration of paid maternity leave divided into two groups: 0 if the duration of paid maternity leave is 120 days or less, and 1if it is more than 120 days.	Our World in Data
Unions coverage	Binary variable expressing employee union coverage divided into two categories: 0 (low) if it is 30% or less of employees and 1 (high) if it is more than 30% of employees.	OECD
Formal childcare	Percentage of children aged 0-3 years who attend formal child care or education facilities for 30 or more hours per week.	Eurostat

In Tables 3 and 4 below we present part of the data contained in the dependent variables we have worked with, where for brevity we present figures for the latest year 2018 only. Gender pay gaps in these tables are calculated for annual salaries in 2018 along with the average for all countries in our sample. We can notice quite large differences across groups and countries. We observe the largest of the gaps shown for Italy in the occupational group of Legislators and executives, where women on average earn only 59.27% of what men do. We see the smallest wage inequalities in Romania in the service sector, where the gap between men and women's salaries is only 0.1%. An interesting observation is the cases where gender pay inequalities appear to be against men, with the largest difference in Greece in non-manual jobs, where women are paid up to 22.74% more.

Table 3: Gender pay gaps in annual earnings by selected job types in 2018

Country	A_fulltime	A_industry	A_services	A_nonmanual	A_manual
Austria	78.10	79.85	78.23	67.07	70.34
Belgium	95.19	88.07	92.05	90.13	84.55
Bulgaria	83.41	80.37	85.41	73.34	78.37
Croatia	87.86	84.78	83.99	79.58	70.37
Cyprus	84.25	74.84	82.45	78.29	70.06
Czechia	76.97	77.30	78.77	68.07	74.04
Denmark	79.49	91.10	83.08	75.81	75.73
Estonia	74.85	73.70	76.42	69.14	67.48
Finland	78.60	91.29	81.11	72.49	72.51
France	81.68	90.81	79.72	71.87	80.60
Germany	80.43	79.17	82.69	70.24	70.53
Greece	86.27	80.28	84.39	122.74	76.39
Hungary	81.90	80.81	84.05	69.43	76.05
Iceland	81.68	82.49	85.77	77.21	73.31
Ireland	83.02	89.52	83.90	73.63	74.93
Italy	84.45	85.46	83.94	74.49	79.94
Latvia	76.65	81.64	76.52	68.19	67.24
Lithuania	81.90	81.29	86.08	71.64	75.18
Luxembourg	93.59	96.17	90.43	79.29	78.49
Malta	84.07	81.02	82.82	78.59	75.09
Netherlands	85.02	78.13	83.26	71.95	73.36
Norway	85.53	95.97	84.87	77.79	81.44
Poland	82.87	81.84	81.42	72.36	74.13
Portugal	85.81	81.11	86.49	79.25	73.45
Romania	96.84	82.99	99.90	85.74	82.84
Slovakia	77.11	76.81	79.20	68.63	72.46
Slovenia	88.91	87.10	86.22	80.50	74.81
Spain	88.35	87.58	85.63	77.64	72.26
Sweden	86.95	96.13	86.88	81.99	83.30
Switzerland	81.28	85.44	78.26	76.15	82.33
United Kingdom	76.07	80.48	77.02	68.03	70.08
Average	**83.52**	**83.99**	**83.58**	**76.49**	**75.21**

Source: Own calculations based on aggregate data from the Structure of Earnings Survey of Eurostat.

Table 4: Gender pay gaps in annual earnings by selected occupations in 2018

Country	A_ managers	A_ professionals	A_ cleric	A_ craft	A_ operators	A_ elementary
Austria	68.67	80.04	82.97	73.30	77.48	79.13
Belgium	93.66	88.39	98.03	88.13	85.19	90.74
Bulgaria	80.34	64.16	85.54	72.91	82.84	93.26
Croatia	71.44	79.96	91.46	70.42	77.55	76.29
Cyprus	82.44	91.07	95.84	74.26	78.51	83.23
Czechia	70.50	71.84	81.02	74.97	82.68	75.57
Denmark	76.78	78.00	93.08	81.78	85.98	81.32
Estonia	77.67	71.13	84.66	68.67	74.26	74.81
Finland	76.19	82.47	91.62	85.34	81.45	78.90
France	73.98	70.68	93.47	83.74	82.80	91.78
Germany	70.69	76.37	92.39	81.23	83.44	91.30
Greece	89.41	78.25	82.54	69.94	69.98	92.56
Hungary	70.90	68.52	80.22	81.60	87.04	88.12
Iceland	74.99	81.27	88.16	71.89	100.95	83.07
Ireland	65.04	84.52	75.37	73.39	97.40	80.00
Italy	59.27	68.21	86.84	80.14	83.13	86.39
Latvia	80.77	64.28	79.81	70.90	78.54	76.01
Lithuania	84.52	75.24	81.40	78.20	88.76	84.57
Luxembourg	70.66	97.79	101.09	89.23	83.31	88.00
Malta	77.57	84.51	90.77	77.70	85.42	76.76
Netherlands	73.70	81.88	86.25	82.24	77.30	93.45
Norway	76.43	79.60	93.59	85.91	87.37	86.59
Poland	72.79	73.18	94.08	74.55	81.20	82.90
Portugal	77.05	85.84	94.74	74.36	68.24	87.98
Romania	91.85	84.20	89.43	81.12	85.65	93.59
Slovakia	65.08	72.01	86.88	74.28	81.31	79.23
Slovenia	83.91	80.17	101.46	80.74	77.13	80.25
Spain	78.94	84.11	79.96	76.15	83.02	82.05
Sweden	77.97	84.01	98.23	85.74	90.91	88.78
Switzerland	76.15	84.08	99.18	81.84	80.19	81.98
United Kingdom	69.35	80.05	87.61	74.07	76.77	81.54
Average	**76.09**	**78.90**	**89.28**	**78.02**	**82.44**	**84.20**

Source: Own calculations based on aggregate data from the Structure of Earnings Survey of Eurostat.

4 Results

Results of the regression analysis are presented in Tables 5-8. In the models, we observed the coefficients and their statistical significance for seven identical socioeconomic factors on gender pay inequality for different groups of employees and jobs. Statistical significance is denoted by the asterisk symbol, where * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level. Standard errors that are clustered at country level are always shown in parentheses.

4.1 Annual, monthly, vs. hourly wage gaps

Table 5 contains three OLS models in which we observed the impact of our selected socioeconomic factors on the wage gap for full-time workers. The independent variables differ according to whether they are annual, monthly, or hourly employee wages.

Table 5: Comparison for annual, monthly and hourly gaps of fulltime workers

	(1) A	(2) M	(3) H
Education level 3-8	-0.025	0.009	0.244
	(0.230)	(0.239)	(0.263)
Active persons	-0.334*	-0.200	-0.589**
	(0.177)	(0.160)	(0.233)
Fertility rate	-5.305*	-4.622	-4.074
	(2.996)	(3.012)	(3.052)
Age at childbirth	0.818	0.905	1.405*
	(0.722)	(0.726)	(0.778)
Paid maternity leave < 120 days	3.425*	2.834	2.257
	(1.743)	(1.774)	(2.201)
Unions coverage < 30%	-2.235	-1.966	-3.629
	(1.669)	(1.681)	(2.151)
Formal childcare	0.144	0.117	0.117
	(0.098)	(0.096)	(0.112)
Constant	58.412***	58.028***	42.066*
	(20.709)	(19.992)	(22.855)
Observations	87	88	88
Adjusted R^2	0.327	0.268	0.359

Source: Own calculations.

The first regression observes the impact of selected socio-economic factors on the gender gap in annual salaries for full-time employees. There are 87 observations in the model and the value of the adjusted coefficient of determination is 32.7%. In the regression, we observe that at the significance level of 10%, the effects of several independent factors are statistically significant. The Active persons variable has a negative effect on the wage gap and the gap widens as women's labor force participation increases. We can assume that one of the reasons for this negative trend is the strong concentration of women in lower-earning sectors. The total fertility rate also has a negative effect on the annual wage gap, and an increase in fertility by one child on average increases the wage gap by 5.3 pp. Such a change is consistent with the theory that motherhood has a negative impact on women's employment, career development and financial evaluation. In contrast, the positive effect on the wage gap in this model is that if women in a country are entitled to 120 or fewer days of paid maternity leave, such a family policy improves the wage gap by 3.43 p.p. We also observe interesting effects of statistically insignificant variables. Increasing the share of educated women widens the gender wage gap by 0.03 p.p. and we also see a negative impact for the Unions coverage variable, where low union coverage causes the wage gap to widen by 2.24 p.p. The availability of care and education facilities has the largest impact for the annual wage gap among the models in Table 5. We observe that increasing the number of children in such facilities by 1 pp. reduces the wage gap by 0.14 pp.

The second model in Table 5 observes the impact of selected socio-economic factors on the gender wage gap in monthly wages of full-time workers. The regression includes 88 observations and the value of the adjusted coefficient of determination is 26.8%. None of our selected independent variables have a statistically significant effect for this model.

The third model observes the effect on the gender wage gap of hourly wages of workers working full-time. As with annual salaries, we see a significant negative impact of the Active Persons variable at the 5% significance level. Also interesting is the effect of the average age of women at childbirth when with each additional year the wage gap shrinks by 1.4 p.p. The coefficient of the variable Education is still statistically insignificant, but in this model it has increased significantly and shrinks the gender wage gap in hourly wages by 0.24 p.p. The third model has the highest value of the adjusted coefficient of determination of 35.9% among the regressions in Table 5. There are 88 observations in the regressions.

4.2 Industry and construction vs. service sectors

In the following analysis, we examined the impact of various socio-economic factors on the gender pay gap in two sectors of the economy. The first sector is industry and construction (NACE B-F), where men are typically more likely to be employed. The second sector is services (NACE G-S_X_O), where stereotypically female jobs are more common. The results of this examination can be seen in Table 6. OLS models were constructed for annual, monthly and hourly wage gaps in both observed sectors of the economy. The linear regressions include seven independent variables that are the same for all six models.

The first observed model in Table 6 puts the annual wage gap in the industrial and construction sectors and the 7 independent variables in the regression. We find that education, female labor force participation, fertility, paid maternity leave, and the number of children in child care do not have a statistically significant effect on the annual wage gap in this industry. However, an interesting finding emerges for the average age of women at childbirth, where each added year reduces our gap by 2.45 p.p. with statistical significance at the 1% level. The coefficient of the variable that says low union coverage has a negative effect on the dependent variable where it increases the wage gap by 4.86 p.p. at the 5% level of statistical significance. We observe statistically insignificant coefficients of several variables. The wage gap observed in the first model of Table 6 is magnified by increasing the share of educated women and also by low union coverage of employees. Increasing the female labor force participation rate shrinks the wage gap along with the variables that are associated with motherhood namely Fertility rate, Paid maternity leave and Formal childcare. Interesting observation is that increasing the fertility rate by one child reduces the wage gap by 1.88 p.p. The adjusted coefficient of determination has a value of 47.7%. There are 87 observations in the model.

The second model observes the effect of independent variables on the gender wage gap in monthly wages for the industry and construction sectors. As in the first model, 5 of the 7 independent variables have a statistically insignificant effect. The effect of the average age of women at childbirth emerges as significant, where each additional year reduces the gender wage gap by 2.17 p.p. at the 1% significance level, and also the low union coverage of employees, which affects the wage gap negatively and increases it by 4.66 p.p. at the 5% significance level. The adjusted coefficient of determination for this model has a value of 46.1%. Model 2 has 87 observations.

Table 6: Comparison for industry and services

	(1) A industry	(2) M industry	(3) H industry	(4) A services	(5) M services	(6) H services
Education level 3-8	-0.193	-0.216	-0.261	-0.086	-0.118	-0.032
	(0.262)	(0.250)	(0.250)	(0.268)	(0.239)	(0.249)
Active persons	0.148	0.195	0.177	0.117	0.093	-0.050
	(0.155)	(0.160)	(0.149)	(0.233)	(0.216)	(0.253)
Fertility rate	1.877	2.359	1.629	-4.893	-4.087	-4.779
	(4.324)	(4.152)	(3.819)	(3.344)	(2.696)	(2.823)
Age at childbirth	2.452***	2.167***	2.312***	0.833	0.610	1.156
	(0.778)	(0.750)	(0.784)	(0.985)	(0.854)	(0.891)
Paid maternity leave	2.712	2.329	1.847	-0.110	0.136	-0.681
	(1.668)	(1.561)	(1.651)	(1.952)	(1.717)	(1.873)
Unions coverage	-4.859**	-4.655**	-5.378**	-0.607	-0.687	-0.998
	(1.988)	(1.936)	(2.008)	(1.833)	(1.754)	(2.097)
Formal childcare	0.102	0.100	0.105	0.150	0.133	0.139
	(0.069)	(0.064)	(0.071)	(0.094)	(0.081)	(0.085)
Constant	5.895	14.835	13.243	60.647**	67.454**	52.914*
	(20.863)	(20.422)	(22.401)	(28.539)	(25.053)	(25.862)
Observations	87	87	87	87	87	87
Adjusted R^2	0.477	0.461	0.537	0.140	0.134	0.127

Source: Own calculations.

In the third model, we observe the effect of the independent variables on the gender wage gap of hourly wages in industry and construction. As for the monthly and annual wage gaps, the average year of women at childbirth where each year by which women delay childbirth reduces the wage gap by 2.31 p.p. emerges as statistically significant, this coefficient is statistically significant at the 1% level. Low union coverage also has a statistically significant effect at the 5% level, and if union coverage is less than 30% it increases the wage gap by 5.38 p.p. The value of the adjusted coefficient of determination is 53.7%. There are 87 observations in this regression.

The significant effect of the variable Female mean age at childbirth, for the industry and construction wage gap is consistent with the theory that mentions that gender wage gap is also rooted in the career gap. Therefore, we can assume that by planning motherhood later, women have more time for career advancement and are able to hold higher or better paid positions. The negative effects of motherhood (discussed in more detail in Chapter 1) therefore also start to affect them later and their impact may not be so significant. Consistent with theory, the negative impact of low union coverage and collective agreements is also evident, so we can assume that the lack of protection for women and vulnerable workers together may have a negative impact on their working and pay conditions.

Models 4-6 observe gender pay gaps in the service sector. Where the first model focuses on annual wages, the second model on monthly wages and the third model on hourly wages. These models show relatively low adjusted coefficient of determination namely 14% for model 4, 13.4% for model 5 and 12.7% for model 6. In all of these models, we have 87 observations. None of the coefficients on the selected socioeconomic factors prove to be statistically significant for the stereotypically female service industry. We see the largest effect for the Fertility rate variable, where increasing the total fertility rate by one child widens the wage gaps in each of Models 4-6 by more than 4 p.p.

Comparing these sectors using the models, we see that while the observed socioeconomic factors did not have a significant impact on the gender wage gap in the stereotypically female service sector, we observe interesting findings for the stereotypically male industrial and construction sectors. The gender wage gap in the stereotypically male sector is significantly reduced by women's age at childbirth, from which we can infer the later onset of disadvantages and penalties for women associated with motherhood. We also observe the need for increased union coverage of employees for better protection and reduction of the gender pay gap.

4.3 Manual vs. non-manual jobs

We next decided to observe the impact of selected socio-economic factors on the gender wage gap for manual (ISCO 7-9) and non-manual (ISCO 1-5) occupation groups. We built six OLS models whose results can be seen in Table 7. These models are for annual, monthly and hourly gender wage differentials of manual and non-manual occupations. For each model, the same socioeconomic factors are used as independent variables.

Table 7: Comparison for manual vs. non-manual workers

	(1) A nonmanual	(2) M nonmanual	(3) H nonmanual	(4) A manual	(5) M manual	(6) H manual
Education lev. 3-8	0.127	0.098	0.262	-0.243	-0.231	-0.286
	(0.235)	(0.209)	(0.221)	(0.177)	(0.198)	(0.183)
Active persons	-0.196	-0.115	-0.366*	0.062	0.017	-0.088
	(0.186)	(0.159)	(0.189)	(0.140)	(0.158)	(0.125)
Fertility rate	-1.656	-1.862	-2.771	1.153	0.953	3.844
	(3.397)	(2.698)	(2.661)	(4.429)	(3.750)	(2.759)
Age at childbirth	1.228	1.260*	1.615**	1.578**	1.346**	1.740***
	(0.824)	(0.716)	(0.727)	(0.615)	(0.582)	(0.456)
Paid maternity l.	2.684*	2.288	1.582	0.598	0.425	0.227
	(1.526)	(1.360)	(1.587)	(1.483)	(1.566)	(1.344)
Unions coverage	-2.193	-2.158	-2.903	-3.157**	-2.842	-2.582
	(1.608)	(1.474)	(1.807)	(1.508)	(1.766)	(1.564)
Formal childcare	0.157*	0.144**	0.159**	0.063	0.084	0.105**
	(0.079)	(0.067)	(0.070)	(0.050)	(0.057)	(0.043)
Constant	32.283	34.785*	25.083	25.256	32.411*	16.323
	(22.698)	(19.647)	(20.765)	(15.655)	(16.173)	(12.498)
Observations	88	88	88	86	86	86
Adjusted R^2	0.350	0.398	0.416	0.293	0.272	0.427

Source: Own calculations.

The first model has as dependent variable the difference in annual wages between men and women in non-manual occupations. There are 88 observations in the model and the value of the adjusted coefficient of determination is 35%. The coefficients of the variables Paid maternity leave and Formal childcare are found to be statistically significant at the significance level of 10%. Women's ability to be eligible for 120 or fewer days of paid maternity leave reduces the wage gap by 2.68 p.p. Increasing the percentage of children aged 0-3 attending childcare or education for 30 or more hours per week reduces the annual gender wage gap for the group of non-manual occupations. Each increased percentage of such children reduces the wage gap by 0.16 percentage points.

The second model in Table 6. observes the effect of socioeconomic factors on the monthly wage gender gap for employees in non-manual occupations. We observe statistical significance of the coefficient on the variable Female mean age at birth at the 10% level and see that each year that women on average give birth later reduces the wage inequality by 1.26 p.p. At the 5% level, the variable Formal childcare is also statistically significant, where each percentage point increase in the number of children in care or education reduces the monthly gender wage gap by 0.14 p.p. Model 2, like Model 1, has 88 observations and the adjusted coefficient of determination is 39.8%

In Model 3, we observe the effect of the independent variables on the hourly gender pay gap for employees with non-manual occupations. The coefficients on two of the seven socioeconomic factors are found to be statistically significant at the 5% significance level. We observe that each one-year increase in the average age of women at childbirth reduces the given wage gap by 1.62 p.p. Model 3 also shows the effect of children in care and education settings, where an increase of 1 p.p. each time reduces the wage gap by 0.16 p.p. The number of observations in Model 3 is 88, and the value of the adjusted coefficient of determination is 41.6%.

Effects of selected socio-economic factors on the annual gender pay gap for manual occupations can be observed in model 4. Similar to the previous two models, we see statistical significance of the coefficient of the variable Female mean age at childbirth. This coefficient is significant at the 5% level, and each one-year increase in female mean age at childbirth reduces the wage gap by 1.58 p.p. The negative effect on the wage gap in Model 4 is due to low union coverage of employees; coverage of less than 30% of employees increases the wage gap by 3.16 p.p. This coefficient is statistically significant at the 5% level. Model 4 has 86 observations and has a relatively low adjusted coefficient of determination of 29.3%.

4.4 Types of occupations

Table 8 shows regressions whose dependent variables are different types of occupations according to the ISCO classification. We observe the impact of selected socioeconomic factors on gender wage inequality for annual wages for different occupations. We do not observe a statistically significant effect of any of the coefficients of the independent variables in Model 2, where the dependent variable is the gender wage gap for specialists, and in Model 5, where the dependent variable is the gender wage gap for operators and assemblers of machinery and equipment. Therefore, in the following we will focus only on models 1,3,4 and 6.

The impact of selected socio-economic factors on the gender pay gap of legislators and managers is presented in Model 1. This model has 88 observations and an adjusted coefficient of determination of 13.8%. We observe the coefficients of two variables namely Paid maternity leave and Formal childcare as statistically significant at 10% level. The ability of women in a country to take paid maternity leave of 120 days or less reduces the gender pay gap for legislators and managers by 3.37 p.p. Also, increasing the number of children in care and education facilities has a positive effect on the pay gap such that each 1 p.p. increase in the proportion of children reduces the gender pay gap by 0.14 p.p.

In Model 3, we used the gender pay gap for administrative and clerical workers as the dependent variable in the regression. Surprisingly, we find the effect of the variable Education level 3-8 where as the proportion of educated women increases, the wage gap widens. However, such a finding is consistent with some of the findings of the theory, which often points to differences in the educational choices of men and women, where women are more likely to choose education in lower-paying fields. We see a positive effect on the wage gender gap in Model 3 when we increase the number of children in care and education settings where each additional percentage of children in such settings reduces the wage gap by 0.2 p.p. There are

88 observations in Regression 3 and the value of the adjusted coefficient of determination is 24.4%.

Table 8: Comparison for occupations

	(1) A managers	(2) A professionals	(3) A clerks	(4) A Craft	(5) A operators	(6) A elementary
Education lev.	0.367	-0.252	-0.506*	-0.421*	0.093	-0.321
	(0.236)	(0.296)	(0.277)	(0.238)	(0.308)	(0.246)
Active pers.	0.119	0.038	0.211	0.356*	0.299	-0.153
	(0.225)	(0.217)	(0.215)	(0.179)	(0.242)	(0.205)
Fertility rate	-2.342	-2.203	-1.486	1.567	4.335	-1.109
	(5.096)	(5.456)	(5.584)	(6.315)	(3.625)	(3.994)
Age at childb.	-1.105	1.252	0.926	2.450***	0.511	1.478*
	(1.291)	(1.015)	(0.875)	(0.808)	(0.920)	(0.820)
Paid mat. l.	3.369*	2.965	0.819	1.065	-0.638	3.188*
	(1.760)	(1.887)	(1.950)	(1.849)	(2.307)	(1.773)
Unions cov.	0.012	-3.670	-1.619	-3.104	-1.404	0.241
	(1.800)	(2.417)	(2.171)	(2.112)	(2.315)	(1.485)
Childcare	0.136*	0.009	0.197**	0.055	0.095	0.108
	(0.075)	(0.071)	(0.085)	(0.077)	(0.098)	(0.066)
Constant	107.137***	45.396	60.854**	4.568	60.853*	34.519
	34.160	29.255	23.498	21.022	30.345	22.625
Observations	88	88	88	88	88	86
Adjusted R^2	0.138	0.139	0.244	0.351	0.150	0.202

Source: Own calculations.

Model 4 reports the effects of independent factors on the gender wage gap for skilled workers and craftsmen. We observe statistical significance at the 10% level for two of the seven independent variables. As in Model 3, in Model 4 we see a negative effect of increasing the proportion of educated women, and when the difference in the percentage of educated women and men increases by 1 p.p., wage inequality increases by 0.42 p.p. An interesting observation is the effect of the variable Female mean age at childbirth, where each year that women on average give birth later reduces the wage gender gap for skilled workers and artisans by 2.45 p.p. This coefficient has statistical significance at the 1% level. Model 4 contains 88 observations and the value of the adjusted coefficient of determination is the highest among the models in Table 7 at 35.1%.

The last model in Table 8. reports the effect of selected socio-economic factors on the gender wage gap between the skilled and unskilled workers. This model has 86 observations. The value of the adjusted coefficient of determination is relatively low at 20.2%. We observe two of the seven coefficients of the independent variables to be statistically significant at the 10% significance level. An increase in the average age of women at childbirth has a positive effect on the wage gap, such that an increase of one year reduces the wage gap by 1.48 p.p. The availability of paid maternity leave of 120 days or less also has a positive effect on the wage gap. The existence of such a family policy reduces pay inequalities by 3.19 pp.

Conclusion

In this paper we compared the level of gender pay gap in Slovakia with 30 other European countries and found statistically significant effects of several of the observed socio-economic factors using regression analysis. Motherhood clearly has the most negative effect on women's wages.

Regression models reveal statistical significance of several of the observed socio-economic factors in relation to the gender pay gap. For example, we observe the significance of increasing women's average age at childbirth. Women's decision to start a family later reduces the wage gap in the labour market. Such a finding confirms the negative impact of motherhood and the disproportionately higher burden of family responsibilities on women. In many cases, the possibility of paid maternity leave of 120 days or less also has a positive impact on the gender pay gap. In other words, longer paid maternity leave would work against gender pay equality. As an additional observation, we find that the gender wage gap repeatedly narrows in regression models if there is an improvement in the availability of care and education facilities for children aged 0-3 years. From these findings, we can assess that women clearly suffer greater consequences of starting a family than men. In order to improve wage inequalities and women's overall position in the labour market, it is necessary to provide better family policies for the post-natal period, such as improving the availability of childcare facilities to enable women to return to work quickly.

Our results further suggest that increasing the coverage of employees by trade unions has a positive impact on narrowing gender wage gaps. Repeatedly, the models show that union coverage of less than 30% of employees increases gender pay inequalities. We can assume that this effect occurs because of the lack of protection of the most vulnerable employees, which often includes women.

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FINANCIAL VULNERABILITY OF SLOVAK HOUSEHOLDS: A MICROECONOMIC ANALYSIS BASED ON THE HFCS DATA[1]

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Abstract: The paper examines the financial vulnerability of Slovak households using microdata from the fourth wave of the Household Finance and Consumption Survey (HFCS). The primary goal is to identify households that exceed specific debt burden indicators, including the debt-to-asset ratio (DTA), debt-to-income ratio (DTI), debt-service-to-income ratio (DSTI), and loan-to-value ratio (LTV). The study employs a univariate analysis to explore the socio-economic and demographic characteristics of indebted financially vulnerable households. The findings indicate that younger households, single-person households, and those with lower income and education levels are more likely to be financially vulnerable. The paper concludes that targeted interventions are needed to improve the financial resilience of this group of households.
Keywords: Slovak household indebtedness, HFCS, household financial vulnerability
JEL: D14, D15, G51

Introduction

Before the global financial crisis (GFC) of 2007-2009, household debt levels saw significant increases in many countries, including the United States (US)[2] and various European Union (EU) countries.[3] Empirical studies suggest that a rapid surge in household debt adversely affects economic growth, consumption, and employment, potentially threatening financial stability.[4] Other researchers have noted the link between high household debt and the increased costs associated with economic cycles. Recessions tend to be longer and deeper in economies with high household leverage.[5]

Between 2014 and 2018, Slovak households experienced the highest annual increase in mortgage and non-mortgage debt among European Union countries. Consequently, the debt-to-GDP ratio rose from 21% in 2008 to 49.2% in 2022, and the debt-to-gross-income ratio of households increased from 43.3% in 2012 to 72.6% in 2022.[6]

Compared to other Central and Eastern European (CEE) countries that underwent similar economic transformations following the collapse of centrally planned economies in 1989, Slovak households in 2021 have become among the most indebted within the Visegrad Group (V4), measured by the debt-to-gross-income (GDI) ratio. This ratio is gradually approaching the average level of the euro area countries (Figure 1). This trend underlines the

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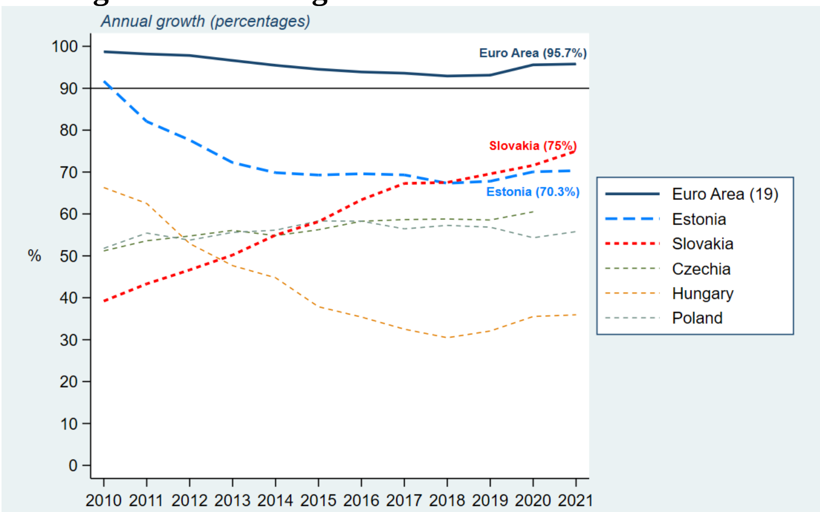
growing financial vulnerability and debt burden of Slovak households, highlighting a significant shift towards higher indebtedness over the past decade. A similar trend can be seen in Slovakia's debt-to-GDP ratio evolution. In 2012, Slovakia had one of the lowest household debt-to-GDP ratios compared to the Visegrad Group (V4) and Central and Eastern European (CEE) countries, as shown in Figure 2. However, post-2012, household debt in Slovakia began to accelerate rapidly. By 2021, Slovakia had the highest household debt-to-GDI and debt-to-GDP ratios among the V4 and CEE countries.

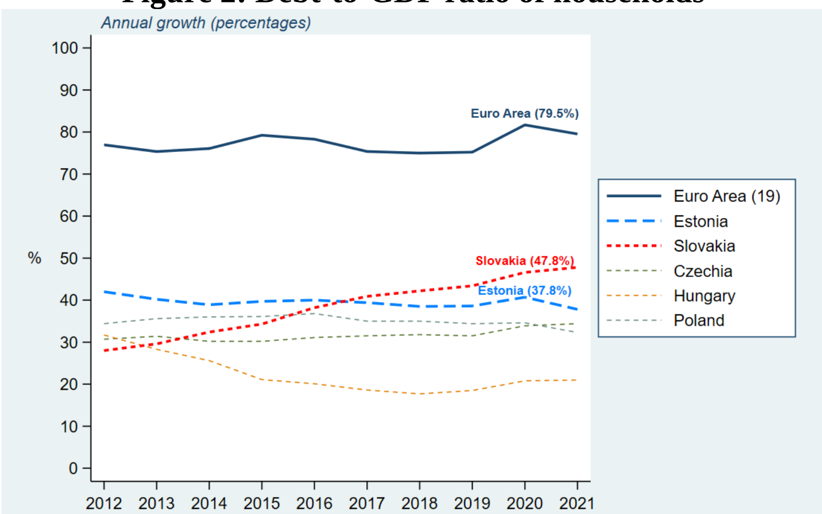
Figure 1: Debt-to-gross-income ratio of households



Source: Eurostat.

A favourable economic environment and low interest rates initially supported the rapid increase in household debt. However, as household indebtedness rises, the economy becomes more sensitive to cyclical fluctuations, potentially increasing the risk of loan default. Excessive indebtedness can pose risks to financial stability and be a source of macroeconomic and financial imbalances and crises.[7]

Figure 2: Debt-to-GDP ratio of households



Source: Eurostat & ECB.

[7] IMF (2017): Global Financial Stability Report: Is Growth at Risk?, p. 64.

Traditionally, households' financial fragility has been analysed using aggregated data. However, the use of aggregate data for assessing the sustainability of household debt has its limitations. One major disadvantage of macro-level data is that it does not differentiate between households that hold debt and those that do not. Furthermore, aggregated data cannot combine individual household debt with their financial or real assets. Another significant limitation is the inability to see the distribution of debt among various socioeconomic or demographic groups, which is essential for identifying the most financially vulnerable households.[8] Therefore, we utilise the Household Finance and Consumption Survey (HFCS) microdata from the fourth wave (2021) to identify and analyse the financial vulnerability of indebted Slovak households.

The level of a household's indebtedness alone does not fully capture its debt sustainability. It is essential to assess the debt in relation to the resources available to the household to manage it, in order to determine whether the debt burden is low or high. In the following sections, we outline alternative measures of financial vulnerability that are commonly used in the literature to indicate potential household financial distress.[9]

The objective of this paper is to identify financially vulnerable indebted households. In our study, financially vulnerable indebted households are defined as those that exceed specific thresholds of selected debt burden indicators, including the debt-to-asset ratio (DTA), debt-to-income ratio (DTI), debt-service-to-income ratio (DSTI), and loan-to-value ratio (LTV). First, we will examine the overall share of households that exceed these defined thresholds. Subsequently, a univariate analysis will be conducted to examine the socio-economic and demographic characteristics of households exceeding these thresholds, with the aim of identifying the most financially vulnerable group of households. Finally, the intensive and extensive margins of different types of debt held by Slovak households are analysed across selected debt burden indicators.

The rest of the paper is organized as follows. Section 1 presents a literature review, while Section 2 introduces the HFCS microdata and Section 3 describes the methodology used in our study. Section 4 presents the results, and Section 5 concludes.

1 Literature review

The determination of households' financial vulnerability depends on the likelihood of defaulting on their debts. The examination of household financial vulnerability is crucial for a couple of reasons. Firstly, given that a majority of an economy's wealth is owned by households, and as wealth stands as a key factor influencing household consumption patterns throughout their lifetime, the decisions regarding consumption made by households are impacted by their financial stability, consequently influencing the economic activities.[10] Two primary conceptual frameworks frequently employed to explain the economic behaviour of households regarding consumption, saving, and borrowing decisions are the life-cycle hypothesis (LCH) proposed by Ando and Modigliani in 1963.[11] In addition, households that are vulnerable to default on their debts pose a risk to financial stability because of their close links with financial institutions. Household behaviour in difficult economic conditions can have implications for financial stability, especially as mortgage lending to households has grown rapidly as a share of total credit.

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[8] ALBACETE, N. – FESSLER, P. (2010): Stress Testing Austrian Households, p. 73.

[9] ALBACETE, N. – LINDNER, P. (2013): Household Vulnerability in Austria – A Microeconomic Analysis Based on the Household Finance and Consumption Survey, p. 65.

[10] KUKK, M. (2016): How did household indebtedness hamper consumption during the recession? Evidence from micro data, p. 785.

[11] ANDO, A. – MODIGLIANI, F. (1963): The "Life Cycle" Hypothesis of Saving: Aggregate Implications and Test, p. 60.

Households that exceed a certain threshold of selected debt burden indicators are considered financially vulnerable, with a high probability of defaulting on their debt payments. A study by May and Tudela (2005) uses a dynamic probit model to examine the circumstances under which mortgage debt becomes a financial burden for British households. The study finds that younger, unemployed, lower income households and those with high LTV ratios are more susceptible to financial stress due to mortgage debt, while households with stable employment are less likely to experience financial difficulties due to mortgage debt. They also find that regular savings and manageable unsecured debt reduce mortgage payment problems.[12]

In their study of the financial vulnerability of Canadian households, Dey et al. (2008) used 35% as the threshold for the DSTI ratio. They found that for households exceeding this ratio, the probability of mortgage-debt delinquency significantly increases. Furthermore, households with high DSTI ratio and low liquidity are identified as particularly vulnerable to financial shocks. They examine the impact of different macroeconomic shocks, including increases in interest rates, declines in house prices, and rising unemployment. Interest rate hikes and unemployment shocks are found to have significant adverse effects on household financial stability. The analysis reveals that financial stress is unevenly distributed, with lower-income households and those with higher debt levels being more susceptible to economic shocks. This helps to identify specific groups of households that are at higher risk of financial distress.[13]

For Austria, Albacete and Lindner (2013) used the first wave of the Austrian HFCS data, and to identify financially vulnerable households, they defined thresholds using multiple debt burden indicators. They considered households that exceed the threshold of debt-to-asset ratio (DTA $\geq$ 0.75), debt-to-service-ratio (DSTI $\geq$ 0.4) and expenses exceeding income to be financially distressed. Households with high debt burdens relative to their income and insufficient financial buffers are identified as particularly vulnerable. The study shows that lower-income households, younger households, and those with unstable employment are more likely to face financial stress. Overall, approximately 19% of indebted households are considered financially vulnerable based on the DTA ratio being 75% or higher. The DSTI ratio as vulnerability measure of 40% or higher appears to be more restrictive, identifying only 5% of households as vulnerable.[14]

A study by Kukk (2016) utilises a unique quarterly panel database from a financial institution to assess the extent to which household indebtedness constrained consumption during the global financial crisis in Estonia. Kukk employs two variables, the debt-to-income ratio (DTI) and the debt-service-to-income ratio (DSTI), to measure household indebtedness. The study confirms that household indebtedness, as estimated by these measures, significantly and negatively impacted household consumption growth over the period from 2006 to 2011. Notably, Kukk finds that the DSTI ratio had a substantially higher negative impact on household consumption growth during economic downturns compared to other parts of the economic cycle. This finding highlights the amplification effect of debt during a recession. The DSTI ratio is found to have a more severe impact on consumption growth during downturns than during other phases of the business cycle.[15]

Funke, Sun and Zhu (2021) employed a range of thresholds within various debt burden indicators in order to identify financially vulnerable households. They identified financially vulnerable households as those for which the debt burden indicators exceed the threshold of

[12] MAY, O. – TUDELA, M. (2005): When is mortgage indebtedness a financial burden to British households? A dynamic probit approach, p. 23.
[13] DEY, S. – DJOUDAD, R. – TERAJIMA, Y. (2008): A Tool for Assessing Financial Vulnerabilities in the Household Sector, p. 51.
[14] ALBACETE, N. – LINDNER, P. (2013): Household Vulnerability in Austria – A Microeconomic Analysis Based on the Household Finance and Consumption Survey, p. 65.
[15] KUKK, M. (2016): How did household indebtedness hamper consumption during the recession? Evidence from micro data, pp. 764-786.

deb-to-asset ratio (DTA > 0.75), debt-to-income ratio (DTI > 0.3) and debt-to-service-ratio (DSTI > 0.3). They provide a comprehensive micro-level assessment of the credit risk faced by Chinese households. High debt-to-income and debt service ratios are found to be significant predictors of credit risk among Chinese households. The study reveals that lower-income households, those with unstable employment, and younger households are more likely to face higher credit risk in case of unexpected adverse economic shocks.[16]

Ampudia et al. (2016) examined household financial vulnerability in 10 Euro Area countries using data from the second wave of the HFCS survey. To identify financially vulnerable households, they defined thresholds for three debt burden indicators: debt-to-asset ratio (DTA > 1), debt-to-income ratio (DTI > 0.4) and debt-to-service-ratio (DSTI > 0.4). The study investigates the determinants of financial fragility, including household income, wealth, employment status, and demographic characteristics. Lower-income households, those with unstable employment, and younger households are more likely to be financially fragile. They find significant heterogeneity in financial fragility across different countries in the euro area. Countries with higher levels of household debt and lower levels of liquid assets have higher proportions of financially fragile households.[17]

Households in selected Central, Eastern and Southeastern European (CESEE) countries show varying degrees of financial vulnerability. The study by Fessler et al. (2017) uses the 2014 HFCS microdata to analyse the financial vulnerability of CESEE households. Among the CESEE countries, households in Latvia and Hungary are particularly financially vulnerable. With respect to selected thresholds of the debt burden indicator as DSTI ratio above 40%, the highest shares of households exceeding this threshold are found in Latvia (14%) and Hungary (17%), while only 5% of Slovak households exceed this threshold. In Latvia and Hungary, many households carry high levels of debt relative to their income, and their debt service payments are higher compared to similar households in other countries. Crises such as the coronavirus pandemic have increased the importance of understanding the financial vulnerability and risk-bearing capacity of households.[18] The study by Albacete et al. (2020) used HFCS microdata from 2017 to examine the financial vulnerability of households in CESEE countries. The share of households exceeding the thresholds of all debt burden indicators (DTA ≥ 0.75 & DTI ≥ 3 & DSTI ≥ 0.4) is highest in Hungary (2%) and Croatia (1.2%), making them the most financially vulnerable among all households in CESEE countries, while in Slovakia the share of households exceeding the thresholds of all debt burden indicators is only 0.6%.[19]

2 Data

We analysed cross-sectional microdata at the household level from the fourth wave of the Household Finance and Consumption Survey (HFCS). The HFCS, coordinated by the European Central Bank (ECB), is an ex-ante harmonised survey that has been carried out since 2010. In Slovakia, the HFCS was conducted in 2011, 2014, 2017 and 2021. The National Bank of Slovakia (NBS) oversees the administration of the survey, while the Statistical Office of the Slovak Republic conducts the fieldwork. The HFCS 2021 sample includes 10,870 observations representing 2,174 respondent households, with data from each household imputed five times to account for missing values.

[16] FUNKE, M. – SUN, R. – ZHU, L. (2021): The credit risk of Chinese households: A micro-level assessment, p. 263.
[17] AMPUDIA, M. – VLOKHOVEN, H. – ZOCHOWSKI, D. (2016): Financial fragility of euro area households, p. 253.
[18] FESSLER, P. – LIST, E. – MESSNER, T. (2017): How financially vulnerable are CESEE households? An Austrian perspective on its neighbors, p. 64.
[19] ALBACETE, N. – FESSLER, P. – PROPST, M. (2020): Mapping financial vulnerability in CESEE: understanding risk-bearing capacities of households is key in times of crisis, p. 80.

The HFCS survey aims to collect detailed micro-data on the financial situation of households. It includes a comprehensive dataset covering different sections of the household balance sheet, such as real assets, financial assets, net worth, mortgage debt, non-mortgage debt, income and expenditure. In addition, these financial elements are integrated with relevant socio-demographic and economic characteristics, including gender, age, education, employment status, household size and more. These data provide an in-depth understanding of households' financial circumstances and help to identify different aspects of their financial decision-making processes.

The sampling design for the fourth wave of the HFCS in Slovakia uses a two-stage stratified random probability sampling method based on census data. The HFCS dataset contains multiple imputed observations as well as survey and replication weights. These elements are crucial to ensure accuracy and representativeness in various calculations and regressions, thus increasing the reliability of the analysis.

Our research focuses primarily on household indebtedness and financial vulnerability in Slovakia. The household may have mortgage debt, non-mortgage debt or both types of debt. The HFCS considers the outstanding balance of mortgage debt owed by households on all their properties. This represents the sum of mortgage debt secured on the main household residence (HMR) and mortgage debt secured on other properties owned by the household. On the other hand, the outstanding amount of other, non-mortgage debt includes outstanding balances on credit lines or overdrafts, outstanding balance of credit cards for which the cardholder is charged interest, and outstanding balances on all other loans (car loans, consumer loans, instalment loans, private loans from relatives, friends, employers etc.).[20]

The availability of HFCS microdata allows us to conduct a comprehensive analysis of the financial situation of indebted Slovak households. In addition, we calculate various debt burden ratios in order to identify the group of households with the highest financial vulnerability.

3 Methodology

Our research focuses on four specific measures of household debt burden: the debt-to-assets ratio (DTA), the debt-to-income ratio (DTI), the debt-service ratio (DSTI) and the loan-to-value ratio (LTV) of households' main residences The debt burden formulas and the thresholds are defined according to the methodology proposed by Fessler et al. (2017) and Albacete et al. (2020).[21,22] Table 1 provides a detailed explanation of the variables used to calculate selected debt burden indicators.

Table 1: Specification of variables used in selected debt burden formulas

Variable	*Description*	*Specification*
D_i	Total value of the household's liabilities.	Represents the sum of the household's outstanding balance of mortgage and non-mortgage debt.
DS_i	Monthly debt payments.	Payments for the household's total debt are the monthly payments (or the monthly equivalent of other frequency payments) made by the household to the lender to repay the loan. They include interest and

[20] ECB (2023): HFCS User Database Documentation: Core and derive variables.
[21] FESSLER, P. – LIST, E. – MESSNER, T. (2017): How financially vulnerable are CESEE households? An Austrian perspective on its neighbors, p. 62.
[22] ALBACETE, N. – FESSLER, P. – PROPST, M. (2020): Mapping financial vulnerability in CESEE: understanding risk-bearing capacities of households is key in times of crisis, p. 79.

		principal but exclude any required payments for taxes, insurance and other charges. The household's total payments include payments for mortgages and payments for other loans such as car loans, consumer credit, instalment loans and loans from relatives, friends, employers.
HMR	Household main residence.	The household main residence is defined as the dwelling in which the members of the household usually live, typically a house or an apartment. A household can only have one main residence at any one time, although it may share this with people who are not members of the household.
W_i	Household total gross assets, excluding public and occupational pension plans.	Total assets include the value of real assets such as the value of HMR and the value of other assets including business assets, vehicles and valuables. It also includes the value of financial assets such as the value of non-self employment private businesses, current accounts, savings accounts, investment funds, bonds, shares, managed accounts, 'other' assets, private loans, voluntary pension plans or life insurance policies.
I_i	Gross annual income of the household	Total aggregated annual gross household income may include the following income sources (employment, self-employment, rental income from property, income from financial assets, income from pensions, regular social transfers (except pensions), regular private transfers, and income from other sources).
$monthly\ I_i$	Gross monthly household income	Gross annual household income divided by 12.
$net\ I_i$	Net annual income of the household	The net annual income of the household is calculated from the gross annual income, taking into account all taxes and social security contributions in 2021.
$net\ monthly\ I_i$	Net monthly household income	The monthly net income is calculated by adjusting the annual gross income for taxes and social security contributions.

Source: ECB, HFCS 2021.

The first indicator of household financial vulnerability examined is the DTA ratio. The DTA ratio is defined for each indebted household *i* and is constructed by dividing the total value of the household's liabilities, D_i, by the household's total gross wealth, W_i (excluding public and occupational pension plans). The DTA ratio provides information on how much debt can be repaid from the total stock of assets. It indicates whether a household may need to deleverage in the medium to long term.

$$DTA_i = \frac{D_i}{W_i} \times 100 \tag{1}$$

The DTI and DSTI ratios provide insight into a household's capacity to manage and service its debt in relation to its current income. The DTI ratio is calculated for each indebted household i, with D_i representing the total value of the household's liabilities and I_i denoting the household's gross annual income.

$$DTI_i = \frac{D_i}{I_i} \tag{2}$$

The DTI ratio provides information on the proportion of debt that can be repaid in relation to household annual gross income. This ratio illustrates the number of years a household would need to generate its annual gross income to repay its entire debt. This ratio is considered a longer-term measure of the capacity to settle debts. However, it's important to note that this indicator does not take into account the maturity of debt. Furthermore, we calculated the DTI ratio as a ratio of total value of the household's liabilities D_i and $net\ I_i$ denoting the household's annual net income.

$$DTI(net)_i = \frac{D_i}{net\ I_i} \tag{3}$$

On the other hand, the DSTI ratio measures the proportion of current monthly debt payments in relation to monthly gross or net income. This indicator indicates households' short-term ability to meet their commitments on time. The DSTI ratio includes DS_i, which is the total monthly debt payments of a household divided by the household's gross monthly income $monthly\ I_i$ (gross annual income divided by 12). It is important to note that the ratio does not include debt payments for credit lines/overdrafts and credit card debt, as this information is not collected in the HFCS.

$$DSTI_i = \frac{DS_i}{monthly\ I_i} \times 100 \tag{4}$$

Furthermore, the availability of the monthly net income allows for the calculation of the DSTI ratio in relation to the monthly net income.

$$DSTI\ (net)_i = \frac{DS_i}{net\ monthly\ I_i} \times 100 \tag{5}$$

An advantage of the DSTI ratio over the DTA ratio is that the former also considers the maturity of loans and the level of interest rates. Longer maturities or lower interest rates reduce the DSTI ratio but do not affect the DTA ratio. Given that the majority of mortgage debt in Slovakia is associated with the household main residence (HMR), it is crucial to analyse the LTV ratio of the main residence of the households. The LTV ratio is also calculated for each indebted household i, where $DHMR_i$ refers to the outstanding amount of household's mortgage debt in relation to their HMR, while $VHMR_i$ corresponds to the current value of the HMR. This indicator provides insights into the overall credit risk associated with the pledged assets.

$$LTV_i = \frac{DHMR_i}{VHMR_i} \times 100 \tag{6}$$

Table 2 provides a summary of the debt burden indicators used in the study, together with a threshold set for each indicator. The selected thresholds are set for convenience, but it's important to recognise that a very high threshold may miss many financially distressed indebted households, while a very low threshold may include indebted households who are able to manage their debt. Therefore, based on the literature review, thresholds have been chosen for each debt burden indicator in order to capture households that are actually in financial distress. Once a indebted household exceeds the threshold set for a particular debt burden indicator, it is considered to be financially vulnerable, with a high probability of defaulting on their debt payments.

As mentioned above the DTA ratio shows the ability of a household to pay its debts with its assets. Households with a DTA ratio above 75% may require a reduction in their debt levels in the medium to long term to prevent financial difficulties. This is of particular concern for those with a DTA ratio above 100% (negative wealth), as their assets are insufficient to cover their total debt. The identification of households as "vulnerable" on the basis of this indicator does not necessarily imply that they are currently experiencing debt payment difficulties.

The DSTI ratio offers an insight into a household's capacity to repay its debts from its monthly income. Households with a DSTI ratio of over 40% may have difficulty meeting their repayments in the event of an unexpected income shock and are therefore considered financially vulnerable. It is important to note that not all households with a DSTI ratio close to or above 40% are necessarily immediately in arrears with their loan payments. However, it already indicates that households could potentially face difficulties in repaying their loans in the event of an adverse shock that would negatively affect their income sources.

A limit on DTI is a regulatory measure that defines the maximum amount of debt a borrower can have in relation to their annual income. This restriction is specifically designed to enhance the borrower's capacity to sustain their debt over the medium term. A household with a DTI ratio exceeding 3 (300%) indicates that a considerable proportion of a household's annual income is allocated to debt repayment. In the event of a household encountering financial difficulties, such as the loss of employment or the occurrence of unforeseen medical expenses, the capacity to fulfil debt obligations may be diminished, thereby increasing the probability of default.

A LTV limit is a financial instrument that limits the amount of debt that can be borrowed to finance a specific asset, such as the purchase of a house or an apartment. It also establishes a minimum capital requirement for a buyer to purchase a property based on its value. A household with a LTV ratio above 75% indicates that a considerable proportion of the property's value is financed through the loan. In the event that the value of the property securing the loan is insufficient to cover the outstanding mortgage debt, the borrower is at risk of foreclosure. As a result, the banking sector may also experience increased losses, which could have a negative impact on financial stability.

Table 2: Debt burden indicators threshold definition

Measure (abbreviation)	**Formula**	**Financially vulnerable if**	**Explanation**
DTA** $_i$ (Debt to asset ratio)	$= \frac{total\ outstanding\ debt_i}{total\ gross\ assets_i}$	≥ 0.75	A household is considered to be financially vulnerable if the ratio of its total outstanding debt to its total gross assets is greater than 0.75.

DTI$_i$ (Debt to income ratio)	$= \frac{total\ outstanding\ debt_i}{yearly\ gross\ income_i}$	≥ 3	A household is considered to be financially vulnerable if its total outstanding debt is greater than three times its yearly gross income.
DTI$_i$ (net) (Debt to net income ratio)	$= \frac{total\ outstanding\ debt_i}{yearly\ net\ income_i}$	≥ 3	A household is considered to be financially vulnerable if its total outstanding debt is greater than three times its yearly net income.
DSTI$_i$ (Debt service to income)	$= \frac{monthly\ debt\ payments_i}{monthly\ gross\ income_i}$	≥ 0.4	A household is considered to be financially vulnerable if it must utilise more than 40% of its monthly gross income for the payment of monthly debt service.
DSTI$_i$ (net) (Debt service to net income)	$= \frac{monthly\ debt\ payments_i}{monthly\ net\ income_i}$	≥ 0.4	A household is considered to be financially vulnerable if it must utilise more than 40% of its monthly net income for the payment of monthly debt service.
LTV$_i$ **(**Loan to value of HMR)	$= \frac{total\ outstanding\ debt\ on\ HMR_i}{current\ value\ of\ the\ HMR_i}$	≥ 0.75	A household is considered to be financially vulnerable if the ratio of its total outstanding debt on HMR to its current value of the HMR greater than 0.75.

Source: Fessler et al. 2017; Albacete et al. 2020.

4 Results

This section identifies potentially financially vulnerable indebted households on the basis of defined thresholds for selected debt burden ratios. The methodology section describes and defines in detail the threshold for each debt burden indicator.

Table 3: Percentage of indebted households exceeding the defined debt burden thresholds

	% of indebted households
Vulnerability measures	
Debt-to-asset ratio ≥ 0.75	3.88
Debt-to-income ratio ≥ 3	11.54
Mortgage debt-to-income ratio ≥ 3	17
Debt service-to-income ratio ≥ 0.4	3.53
Debt service-to-income ratio ≥ 0.4 (households with debt payments)	4.02
Mortgage debt service-to-income ratio ≥ 0.4	4.62
DTA ≥ 0.75 & DTI ≥ 3 & DSTI ≥ 0.4	0.05
Loan-to-value ratio ≥ 0.75	11.11

Source: Own calculation based on HFCS 2021, ECB & NBS.

Table 3 presents the percentage of indebted households that exceeded the defined thresholds of selected debt burden indicators. Table 3 illustrates that a relatively small percentage of households exceed the defined thresholds. For instance, only 3.88% of indebted households exceed the DTA ≥ 0.75, indicating that Slovak households have a low level of debt compared to their assets. Based on the study by Albacete et al. (2020), which uses the 2017 HFCS microdata and analyses the share of financially vulnerable households in selected Central, Eastern and Southeastern European (CESEE) countries, the share of households with DTA ≥ 0.75 is relatively higher compared to our findings. In Latvia, 17.3% of households are potentially financially vulnerable, followed by Austria 15.3% and by Hungary 13.9%. This suggests that, taking into account the DTA ≥ 0.75 ratio, indebted households in Slovakia are less financially vulnerable and the value of their assets is higher than the outstanding amount of debt compared to households in Latvia, Austria and Hungary. Some of these households in these countries may be forced to deleverage in the medium and long term.

Furthermore, 11.54% of households have debt that is three times greater than their annual income (DTI ≥ 3). However, when we examine only those households with mortgage debt, we find that 17% of these households have mortgage debt that exceeds three times their annual gross income. Only 3.53% of indebted households dedicate more than 40% of their monthly income to debt repayments. When we consider only households with mortgage debt, the percentage of households exceeding this ratio rises slightly to 4.63%. In the short term, a more interesting indicator of financial vulnerability is the DSTI ratio of households with debt payments. Comparing to other CESEE countries, the highest share of households exceeding the DSTI ≥ 0.4 with debt payments are in Croatia (17.7%), followed by Slovenia (13.3) and by Lithuania (13.1).[23] The study by Ampudia et al. (2016) finds considerable heterogeneity across countries. In some countries, such as Cyprus, Slovenia or Spain, the ratio exceeds 25%, while in others, such as Austria or Malta, the ratios are well below 10%.[24]

[23] ALBACETE, N. – FESSLER, P. – PROPST, M. (2020): Mapping financial vulnerability in CESEE: understanding risk-bearing capacities of households is key in times of crisis, p. 80.
[24] AMPUDIA, M. – VLOKHOVEN, H. – ZOCHOWSKI, D. (2016): Financial fragility of euro area households, p. 254.

The highest proportion of indebted households exceeding the threshold is observed when considering LTV ≥ 0.75. Approximately 11.11% of households have mortgage loans that represent at least 75% of the value of their property, which is indicative of a high degree of leverage. Eventually, we can see that the percentage of indebted households exceeding all the defined debt burden threshold is minimal (0.5%), indicating minor financial vulnerability among Slovak indebted households. The previous study by Albacete et al. (2020) finds that in Estonia only 0.1% of indebted households exceed all three defined ratios, which is the lowest share among the CESEE countries. The second lowest share is found in Austria (0.3%). In the other CESEE countries the shares range from 0.4% in Poland to 2% in Hungary.[25]

In addition, we examine in more detail the various socio-economic and demographic characteristics of Slovak indebted households that exceed the defined debt burden thresholds.

Table 4: Percentage of indebted households exceeding the defined debt burden thresholds across socio-demographic and economic characteristics - Slovakia - 2021

	DTA ≥ 0.75	*DTI ≥ 3*	*Mortgage DTI ≥ 3*	*DSTI ≥ 0.4*	*Mortgage DSTI ≥ 0.4*	*LTV ≥ 0.75*
	%	*%*	*%*	*%*	*%*	*%*
Age of ref. person						
16 – 34	7.74	24.60	28.59	4.51	5.82	18.01
35 – 44	3.68	12.90	17.69	4.42	4.51	12.01
45 – 54	1.80	5.92	9.54	2.01	3.24	7.69
55 – 64	3.74	4.21	8.56	1.36	2.64	1.59
65 and more	3.12	1.49	*NA*	5.36	*NA*	*NA*
Household size						
1	12.09	26.12	32.93	12.79	14.55	5.50
2	4.74	11.55	20.70	4.21	6.03	16.74
3	3.62	13.19	18.40	4.27	5.95	7.89
4	0.80	8.49	12.21	1.10	1.58	13.31
5 and more	4.37	5.85	9.81	0.55	0.45	9.58
Main labour status						
Employee	3.54	11.68	16.84	2.66	3.27	11.16
Self-employed	2.33	13.45	20.35	4.47	6.65	13.11
Unemployed	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Retired	2.01	1.46	*NA*	3.60	*NA*	*NA*
Education						
Primary	3.45	1.11	54.25	35.01	63.93	5.60
Secondary	5.38	10.05	15.01	4.20	5.51	15.10
Tertiary	0.94	16.25	20.97	2.67	3.29	5.26
Gross Income Quintiles						
1st quintile	13.45	30.05	54.25	35.01	63.90	5.60
2nd quintile	7.40	19.93	37.25	2.21	3.80	2.68
3rd quintile	5.64	10.82	15.89	0.36	0.40	12.76
4th quintile	1.08	9.01	13.35	0.00	0.00	12.24

[25] ALBACETE, N. – FESSLER, P. – PROPST, M. (2020): Mapping financial vulnerability in CESEE: understanding risk-bearing capacities of households is key in times of crisis, p. 80.

5th quintile	0.00	4.47	6.15	0.34	0.47	12.98
Gross Wealth Quintiles						
1st quintile	19.08	5.62	*NA*	7.80	*NA*	*NA*
2nd quintile	1.39	5.79	9.42	2.72	3.26	5.49
3rd quintile	0.58	6.97	9.79	1.43	2.00	9.25
4th quintile	1.60	17.09	23.13	3.17	4.17	16.77
5th quintile	0.16	18.42	22.02	3.36	3.97	9.86
Region (NUTS3)						
Bratislava	5.14	26.37	40.00	4.48	7.46	18.75
Western	2.84	7.98	11.83	5.12	6.07	9.26
Central	3.93	5.47	8.59	1.60	1.44	10.35
Eastern	4.33	10.80	15.89	2.37	3.41	9.19

Note: Descriptive statistics labelled with *NA* could not be computed due to the lack of observations (fewer than 20 in the sample)
Source: Own calculation based on HFCS 2021, ECB & NBS.

Table 4 provides a detailed breakdown of the percentages of indebted households in Slovakia that exceed specific debt burden thresholds, categorized by various socio-demographic and economic characteristics. Table 4 illustrates that younger households exhibit the highest percentages of financially vulnerable households that exceed the defined debt burden thresholds, particularly for DTI ≥ 3 (24.60%) and for mortgage DTI ≥ 3 (28.59%). The same trend can be seen among Portuguese households, where the DTI ratio is the highest among the younger households.[26] The previous studies also confirms that younger indebted households are more likely to be financially vulnerable.[27] Younger households may have lower income levels and fewer accumulated assets, leading to higher debt relative to their financial resources. They might also be in early stages of their mortgage payments. Older households show the lowest percentages, indicating better financial stability. Older individuals likely have lower outstanding debts due to longer repayment periods and more accumulated wealth, reducing their financial vulnerability.

The highest percentages of financially vulnerable households across debt burden indicators are observed in single-person households, particularly in those with a DTI ≥ 3 (26.12%) and mortgage DSTI ≥ 0.4 (14.55%). The same pattern is observed for Austrian households, where the highest share of households with a DSTI ≥ 0.4 is also found among single-person households (7.7%).[28] The study by Costa and Farinha (2012), which examines the Portuguese household, observes the same trend using HFCS microdata from the first wave.[29] Single-person households often have a single income source, making them more susceptible to high debt burdens relative to their income and assets. Households with five or more members show lower percentages of households exceeding the debt burden ratios thresholds, indicating better debt management. Larger households might benefit from multiple income sources or shared financial responsibilities, enhancing their capacity to manage debts.

[26] COSTA, S. – FARINHA, L. (2012): Households' indebtedness: a microeconomic analysis based on the results of the households' financial, p. 151.
[27] FUNKE, M. – SUN, R. – ZHU, L. (2021): The credit risk of Chinese households: A micro-level assessment, p. 263.
[28] FESSLER, P. – LIST, E. – MESSNER, T. (2017): How financially vulnerable are CESEE households? An Austrian perspective on its neighbors, p. 62.
[29] COSTA, S. – FARINHA, L. (2012): Households' indebtedness: a microeconomic analysis based on the results of the households' financial, p. 151.

With regard to the labour status, the proportion of financially vulnerable households among the self-employed is notably higher, with 20.35% exceeding the mortgage DTI ≥ 3 threshold. Self-employed individuals might have unstable or variable incomes, leading to higher debt burdens. Employees have lower percentages of financially vulnerable households, with 11.68% exceeding DTI ≥ 3. Employees typically have more stable income sources, aiding in better debt management. Moreover, households with a primary education level have a higher proportion of vulnerable households, with 63.93% of mortgage DSTI values exceeding 40%. This indicates that more than 40% of their monthly income is allocated to debt payments, which makes them highly vulnerable to any income losses. Lower education levels often correlate with lower income and financial literacy, contributing to higher debt burdens. Conversely, individuals with higher levels of education tend to earn higher incomes and demonstrate enhanced financial management abilities.

The lowest income quintile has the highest percentage of financially vulnerable households, with 30.05% of households in the lowest income quintile having a DTI ≥ 3 and 35.01% of household having a DSTI ≥ 0.4. In Austria, only 20% of households in the lowest income percentile have a DSTI ratio ≥ 0.4.[30] Lower-income households have limited financial resources, making it challenging to manage high debt levels. The proportion of vulnerable households in the top two income quintiles (4th and 5th) is significantly lower than in the other income groups. Higher-income households have more financial flexibility and resources to manage and repay debts. Concerning the gross wealth, households in the 4th and 5th gross wealth quintile have the highest percentages share of financially vulnerable households, particularly for DTI ≥ 3. Households with higher wealth have more assets to leverage against their debts.

Concerning the region, Bratislava has the highest share of households (40.0%) exceeding mortgage DTI ≥ 3 indicating high real estate prices compare annual gross income and to rest of the country. In summary, younger age groups, single-person households, and those with primary education exhibit higher financial vulnerability. The following table presents an analysis of the intensive and extensive margins of various debt types owned by households, based on debt burden ratios.

Table 5: Percentage of indebted households exceeding the defined debt burden thresholds according to debt types

	Proportion			*Median*		
	All indebted households	*Mortgage debt*	*Non-Mortgage debt*	*Total debt*	*Mortgage debt*	*Non-Mortgage debt*
	%	*%*	*%*	*EUR*	*EUR*	*EUR*
Debt-to-asset ratio ≥ 0.75	3.88	1.89	6.39	31,000	*NA*	7,932
Loan-to-value ratio ≥ 0.75	11.11	11.11	14.57	52,501	59,580	*NA*
Debt-to-income ratio ≥ 3	11.54	16.99	4.52	92,347	95,436	*NA*
Debt service-to-income ratio ≥ 0.4	3.53	4.62	1.26	52,501	59,580	*NA*

[30] ALBACETE, N. – LINDNER, P. (2013): Household Vulnerability in Austria – A Microeconomic Analysis Based on the Household Finance and Consumption Survey, p. 65.

Debt-to-net-income ratio ≥ 3	19.50	29.00	8.44	91,719	93,373	4,996
Debt service-to-net-income ratio ≥ 0.4	4.63	5.99	3.95	58,509	65,286	*NA*

Note: Descriptive statistics labelled with *NA* could not be computed due to the lack of observations (fewer than 20 in the sample)

Source: Own calculation based on HFCS 2021, ECB & NBS.

Table 5 provides a comprehensive analysis of the financial vulnerability of indebted households, with a particular focus on the impact of different debt burden ratios, taking into account whether the household has mortgage or non-mortgage debt. The data indicates that a considerable proportion of households with mortgage debt (16.99%) have a DTI ratio exceeding three, which suggests a potential vulnerability to adverse events in the event of financial distress. Furthermore, when net annual income is considered in the DTI calculation, the proportion of indebted households exceeding the DTI ≥ 3 rises to 29%. This indicates that a considerable proportion of a household's annual net income is allocated to debt repayment. In the event of a household encountering financial difficulties, such as the loss of employment or the occurrence of unforeseen medical expenses, the capacity to fulfil debt obligations may be diminished, thereby increasing the probability of default. In contrast, households with non-mortgage debt exhibit a lower percentage (4.52%) exceeding the DTI ≥ 3, suggesting a reduced financial burden associated with non-mortgage debts. The DSTI ratio for all indebted households that exceeds 0.4 (meaning 40% of monthly income is used to service debt) is relatively low at 3.53%. This indicates that a small percentage of indebted households have a significant portion of their monthly income dedicated to monthly debt payments. Among those with mortgage debt, the DSTI ratio exceeding 40% is 4.62%. This suggests that households with mortgage debt are more likely to spend a larger portion of their monthly income on debt repayments. This is understandable given that mortgage payments typically represent a significant financial obligation in household budget. The ratio is notably lower for those with non-mortgage debt, at only 1.26%. This significant difference indicates that non-mortgage debts such as credit card debts, car loans, or personal loans typically involve smaller monthly payments relative to household income compared to mortgage payments. When considering net income, the DSTI ratio exhibit a slight increase, although we cannot consider it as a substantial rise. This indicates that the majority of indebted households are able to fulfil their monthly financial obligations in relation to debt repayments.

Conclusion

Our analysis of the financial vulnerability of Slovak indebted households, based on data from the fourth wave of the Household Finance and Consumption Survey (HFCS), reveals several key insights. The percentage of indebted households exceeding the defined debt burden thresholds is relatively low, even in comparison with other CESEE countries, indicating that most Slovak households manage their debt effectively. However, we find that some indebted households belonging to certain socio-demographic groups and economic characteristics have higher levels of financial vulnerability and require more attention from policymakers.

Younger households (16-34 years) and single-person households are more likely to exceed debt burden thresholds. This can be attributed to lower income levels, fewer accumulated assets, and the early stages of mortgage payments. Older households (65 years and more) and larger households (five or more members) generally show lower financial vulnerability, likely due to more accumulated wealth and multiple income sources. Self-employed individuals face higher financial vulnerability compared to employees, primarily due to unstable or variable incomes. Households with primary education levels exhibit higher debt burdens, indicating lower income levels and financial literacy. Conversely, those with tertiary education show better financial stability. The lowest income quintiles have the highest percentages of households exceeding debt burden thresholds. Limited financial resources make it challenging to manage high debt levels. Higher income and wealth quintiles demonstrate greater financial flexibility and stability, allowing for better debt management. These findings are consistent with previous literature confirming that lower income households, those with unstable employment and younger households are more likely to be financially vulnerable.

Moreover, households with mortgage debt exhibit higher financial vulnerability compared to those with non-mortgage debt, as indicated by higher percentages of indebted households exceeding DTI ≥ 3 and DSTI ≥ 0.4 ratios. Non-mortgage debts, such as credit card debts and personal loans, generally involve smaller monthly payments relative to household income compared to mortgage payments.

Overall, while the financial vulnerability of Slovak households is generally low, targeted interventions are necessary for specific groups that exhibit higher levels of financial distress. These interventions could include financial education programs, income support, and policies aimed at improving job stability and income levels for younger individuals, single-person households, and those with lower education levels. By addressing these disparities, we can enhance the financial resilience of Slovak households and reduce their vulnerability to financial distress.

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INDIA'S FOREIGN TRADE IN SERVICES

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Abstract: During the first two decades of the 21st century, India has emerged as one of the key players in the world economy with a share of 3.3% in world GDP in 2022 and as one of the key players in international trade in services, ranking seventh in exports and ninth in imports of services. The objective of this article is to assess the evolution of India's foreign trade in services and outline possible future developments. In addition, it also identifies the possible changes in the Indian services sector that have taken place during the 21st century. In line with the objective of the paper, we formulate the following research questions: 1. What kind of changes have taken place in India's services trade during the first two decades of the 21st century? 2. What are India's comparative advantages in services trade? 3. What will be the trend of India's exports and imports of services by 2030?
Key words: India, services, exports, imports, international trade
JEL: L80, O53

Introduction

In recent decades, world trade in services has become one of the major drivers of globalization and the interconnection of national economies. The importance of services is documented by their share in world GDP, which was more than 60% in the first two decades of the 21st century, as shown in Figure 1. Although the global pandemic in 2020 and 2021 resulted in a decline in the share of services in world GDP, their share was still above 60% in 2022 and we can assume that this share will be maintained or increased in the years to come, thanks to the recovery from the pandemic and the growth in global demand. This is also shown by the global financial crisis of 2008-2009 and the developments afterwards, when the share of services in world GDP fell in 2009-2010, but this trend was reversed in the following years and the share of services in 2016 reached a higher level than during the crisis.

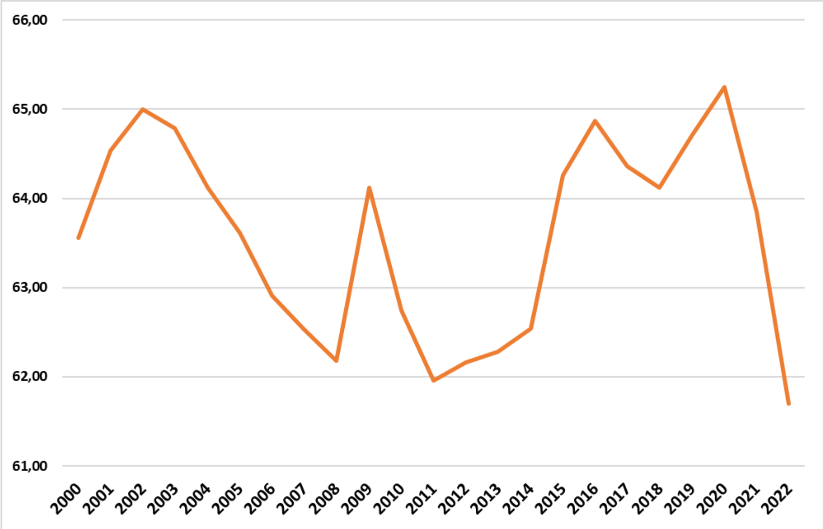
It can be said that the growth of the share of world trade in services in world GDP, and the growth of the volume of world trade in services in general, is influenced by several factors, such as the development of the IT sector, globalization and the dynamically changing global economic environment. The development of the internet and digital technologies in the second half of the 20th century and especially in the 21st century have contributed significantly to facilitating the cross-border provision of services, leading to greater accessibility and greater efficiency in the trade of services. The growing interdependence of national economies within the globalizing tendencies of the world economy has led and is leading to an increase in the demand for services between countries, with all categories of commercial services as defined by the Balance of Payments and International Investment Position Manual being important.[1]

The objective of this paper is to review the evolution of India's foreign trade in services and to outline possible future developments. In addition, it also identifies the possible changes in the Indian services sector that have taken place during the 21st century. In line with the

[1] IMF (2009): Balance of Payments and International Investment Position Manual.

objective of the paper, we formulate the following research questions: 1. What kind of changes have taken place in India's services trade during the first two decades of the 21st century? 2. What are India's comparative advantages in services trade? 3. What will be the trend of India's exports and imports of services by 2030?

Figure 1: Share of services in world GDP

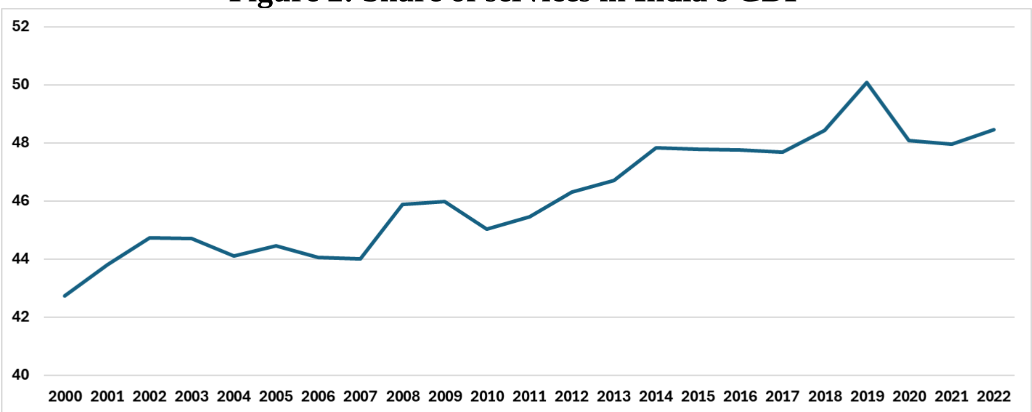


Source: Authors, WDI (2024).

1 Services in India

Although the share of services in GDP was not very high during the second half of the 20th century, averaging 36.5% between 1973 and 1999 (reaching a peak of 42% in 1999), a more significant change occurred during the second decade of the 21st century when the share of service in GDP reached more than 46% since 2012 and 50% in 2019. In the light of the global pandemic, the share of services in GDP has fallen to 48% in 2020 and 2021, but further growth in the sector can be observed from 2022 onwards, with a share of 48.4% of GDP. As far as the period 2000-2022 is concerned, we can observe a relatively slow growth in the share of the services sector in India's GDP. It has remained at 43-48% for virtually the entire period. However, the gradual increase in the share of the services sector in GDP indicates a certain change in India's orientation from the industrial sector to the services sector, as evidenced by other factors such as the education and skills of India's young workforce and investment in the development of IT infrastructure as well as FDI outflows to similar sectors in other regions of the world.

Figure 2: Share of services in India's GDP

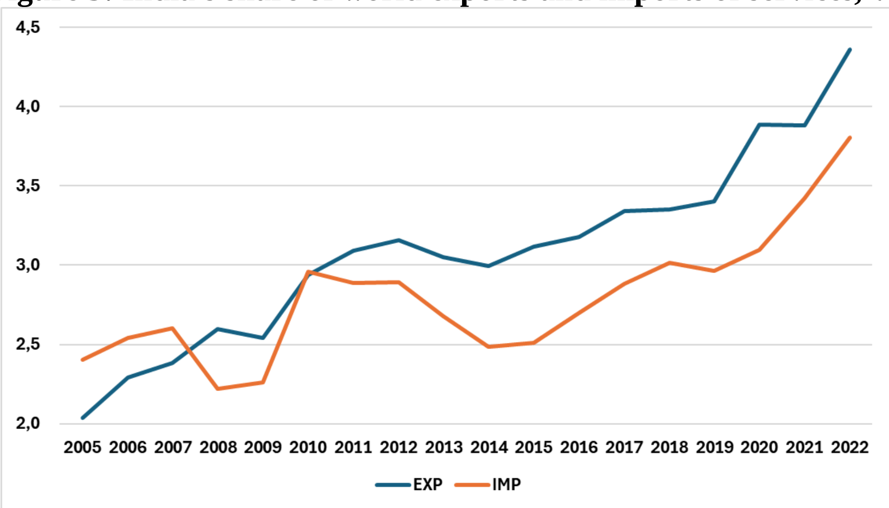


Source: Authors, WDI (2024).

In addition to the growth in the share of the services sector in India's GDP during the 21st century, the sector has also been gradually contributing to the growth of India's foreign trade volume. In the case of services exports, we can observe a growth in the volume of exports except in the pandemic year of 2020. Thera was a decline in the volume of services exported, but in 2021, there was a growth in the volume of exports by 18% over 2020 and even by 28.6% in 2022 over 2021. The second exception to the growth trend was 2009 (global financial crisis). There was a decline in volume compared to 2008, but this was, like a decade later, compensated by growth already in 2010, with the volume of services exports in 2010 being USD 11 billion higher than in 2008. There has been a significant growth in India's services exports between 2005-2022. The growth of services has increased from USD 52.52 billion in 2005 to USD 309.37 billion in 2022. Thus, India's services exports grew almost 6-fold in less than two decades.

As far as India's share in total world services exports and imports is concerned, it is still not as significant as in the case of China. Although during the first decade of the 21st century the shares of both flows were relatively low at 2-3%, during the second decade of the 21st century (and especially since 2015), there has been a significant growth in the share of both flows in world exports and imports as shown in Figure 3. Currently, India's share in world exports is 4.4% and in world imports 3.8%.

Figure 3: India's share of world exports and imports of services, %



Source: Authors, ITC (2024).

2 Results

Our analysis uses data from the Center for International Trade's Trademap database.[2] We draw on data for the period 2005-2022. In this section, we identify the main changes in India's trade in services, as well as India's position in the world services market in terms of services exports and imports. In addition, we forecast the evolution of services export as well as import volumes to the year 2030 and identify the comparative advantages of India's trade in services.

The different groups of services and their share in India's exports and imports as well as the changes during 2005-2022, is evident in Table 1. For both flows, we list the top five service groups with the highest share in total services exports and imports. Looking at the table, it is evident that there have been no significant changes in India's services exports or imports during

[2] ITC (2024): Trademap.

the first two decades of the 21st century, and thus India has traded the same service groups throughout the period under review. On average, other business services and telecommunications, computer and information services accounted for 33% of India's total services exports and together now account for almost two-thirds of India's total services exports. Transport and travel also accounted for a significant share of India's exports, with average shares of around 11%. Travel even accounted for an average share of 13% in the pre-pandemic period. In 2020-2022, there was a significant decline in this group due to the pandemic-related restrictive measures, and the share of this group of services fell from 14.3% in 2019 to 3.6% in 2021, rising to 6.9% in 2022 after the phasing out of the measures, which is a significantly lower share than in the pre-pandemic period. One of the factors influencing the growth of this service group has been the positive trend and growth in India's GDP per capita at current prices. While it was still at USD 442 in the early 2000s, it was already USD 1023 in 2007 and USD 2411 in 2022. Regarding the various sub-categories of this group of services, we may assume that personal travel services other than those related to education or health care account for the highest share. The share of this sub-category in India's total services exports would reach around 6.5% in 2022, with a value of USD 20.15 billion. This sub-category was the third most exported in total services exports.

The situation is different for Indian imports in terms of different groups of services. Throughout the period under review, transport services accounted for the largest share of total service imports at an average of 44% per annum, down from over 50% in 2005-2007. In particular, sea and airfreight services were the largest items. In 2022, both sub-categories accounted for nearly USD 100 billion and 39% of India's total imports of services (first and third place in total imports). Technical, trade and other business services within the other business services group with a value of USD 43 billion and a share of 17% ranked second. Both transport and other business services groups maintained a high share in India's total service imports throughout the period under review, although the share of transport declined gradually. In the case of other business services, their average annual share in total imports stood at 23%. The high share of these two groups of services in total imports can be explained by India's favorable economic development (in terms of economic growth as well as GDP per capita growth) during the first two decades of the 21st century. This has led to an increase in domestic demand not only for domestic production but also for production from abroad and hence there has been an increase in imports of sea and airfreight services. In addition, there has also been a growth in the share of other business services as India has created a suitable and attractive environment for foreign businesses.

Table 1: Type of services and their share in total exports and imports of services, %

2005	*%*	*2010*	*%*	*2022*	*%*
Other business services	34,9	Telecommunications, computer and information services	34,6	Other business services	38,9
Telecommunications, computer and information services	32,3	Other business services	29,5	Telecommunications, computer and information services	32,1
Travel	14,4	Travel	12,4	Transport	12,1
Transport	12,5	Transport	11,3	Travel	6,9
Financial services	2,2	Financial services	5,0	Financial services	2,4
Share of exports	***96,3***	Share of exports	***92,8***	Share of exports	***92,4***
Imports					
2005	%	2010	%	2022	%
Transport	54,4	Transport	40,6	Transport	43,7
Other business services	22,4	Other business services	22,2	Other business services	22,9
Travel	10,2	Travel	9,1	Travel	10,4
Insurance and pension services	6,1	Financial services	5,9	Telecommunications, computer and information services	6,9
Telecommunications, computer and information services	2,4	Insurance and pension services	4,4	Fees for the use of intellectual property	4,2
Share of imports	***95,5***	Share of imports	***82,2***	Share of imports	***88,1***

Source: Authors, ITC (2024).

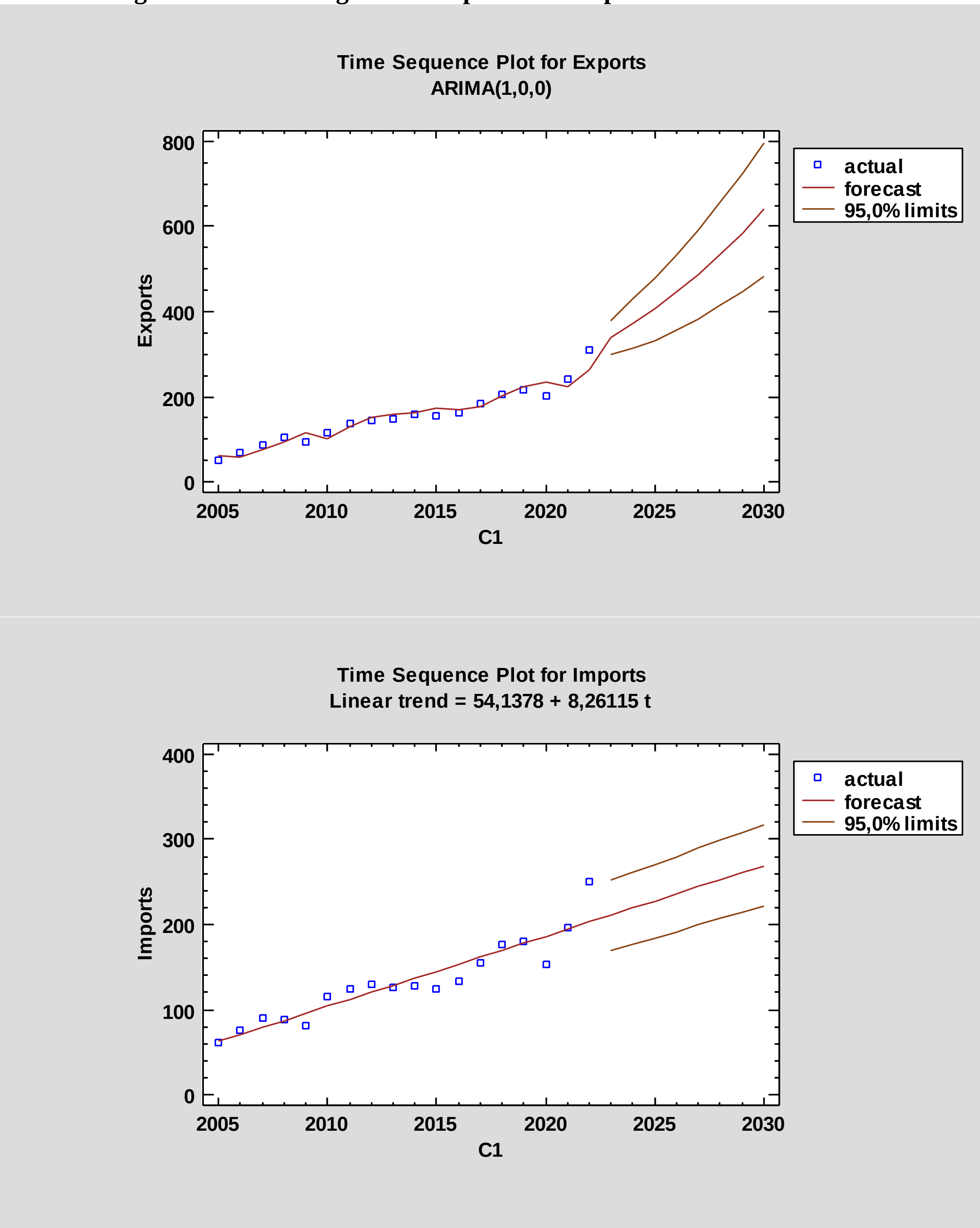
Table 2: Top 10 exporters and importers of services

Exporters			*Importers*		
2005	*2010*	*2022*	*2005*	*2010*	*2022*
USA	USA	USA	USA	USA	USA
United Kingdom	United Kingdom	United Kingdom	Germany	Germany	China
Germany	Germany	China	United Kingdom	China	Germany
France	France	Germany	Japan	United Kingdom	Ireland
Japan	China	Ireland	France	France	United Kingdom
Spain	Netherlands	France	Italy	Japan	France
Italy	Japan	India	China	Netherlands	Netherlands
China	India	Singapore	Ireland	India	Singapore
Switzerland	Spain	Netherlands	Canada	Italy	India
Canada	Italy	Spain	India	Ireland	Japan

Note: India ranked 13th in exports in 2005.
Source: Author, ITC (2024).

Based on the input data from the Trademap database, we have attempted to forecast the evolution of exports and imports of services up to 2030 as shown in Figure 4. We use STATGRAPHICS statistical software to forecast the future evolution of total exports and imports of services up to 2030 with data on total exports and imports of services from 2005 to 2022 with 18 observations for both trade flows. Based on the input data, we use an autoregressive integrated moving average model (ARIMA 1.0.0) to model the evolution of services exports, which is selected by the statistical software as the most appropriate to predict the evolution of exports up to 2030. A linear trend emerged as the most appropriate model to model the evolution of services imports.

Figure 4: Forecasting India's exports and imports of services to 2030



Source: Authors, ITC (2024), STATGRAPHICS.

As can be seen from Figure 4, the forecast of the future development of the value of exports and imports of services is positive; we assume a growth in the volume of exports of services from the current value of USD 309.4 billion to USD 640.4 billion in 2030. This would imply a more than doubling of India's services exports by 2030 compared to the present. In case of imports, we also project growth in value from the current USD 249.5 billion to USD 268.9 billion in 2030. Thus, import growth we expect to be much slower and should increase by around 7.8%. We can conclude that if the forecast of the evolution of exports and imports of services will get confirmed (according to the number of observations of both flows, it is possible that our forecast will have only limited predictive value and India's external trade in services will evolve differently over the course of this decade), India will strengthen its role as a major player in services trade over the course of this decade, particularly in services exports, where we can expect it to export services worth two-thirds of the current US services exports (USD 928 billion in 2022) by 2030.

Next, we identify groups of services where India's exports experience comparative advantages. The analysis is based on the Balance of Payments and International Investment Position Manual. India's foreign trade data used to calculate comparative advantage comes from the TRADEMAP database (2024). In line with the existing empirical literature, we have applied Lafay's index (LI) of international specialization to find the comparative advantages. Zaghini (2003) used LI to examine the evolution of comparative advantages in foreign trade of ten candidate countries that joined the European Union in 2004. LI is a useful indicator of the specialization of a given economy because it takes into account not only exports but also imports. In line with Zaghini (2003), the Lafay's index of international specialization for country i and commodity j can be calculated according to the following equation:

$$LFI_j^i = 100\left(\frac{x_j^i - m_j^i}{x_j^i + m_j^i} - \frac{\sum_{j=1}^{N}(x_j^i - m_j^i)}{\sum_{j=1}^{N}(x_j^i + m_j^i)}\right)\frac{x_j^i + m_j^i}{\sum_{j=1}^{N}(x_j^i + m_j^i)}$$

Where x_j^i is the export of service j from country i to the rest of the world, m_j^i is the import of service j into country i from abroad, and N refers to the total number of traded services. Positive values of LI represent the existence of a comparative advantage of a given country for a given session, with a higher value of LI indicating a higher degree of specialization of the country. On the other hand, negative LI values indicate that a country does not specialize in a given session and does not have a comparative advantage in exporting it. Positive LI values were observed for 5 service groups for 2022, while negative values were observed for 8 service groups as documented in Table 3. For 3 service groups, the LI ranged from 0-0.8, representing a very low level of comparative advantage for these service groups. Thus, a significantly higher level of LI for 2022 was observed only for 2 service groups - telecommunications, computer, and information services (12.45) and other business services (7.91). These 2 groups have accounted for about two-thirds of India's services exports since 2005 (reaching 71% in 2022). At the same time, both these groups have achieved significant growth in export volumes during the pandemic period of 2021 and 2022. This volume growth has been driven on the one hand by the growth in global demand for skilled labor as well as cost-effective solutions, which India has been able to cater to and is therefore emerging as one of the major players in the international trade in services. In terms of the internal drivers of the Indian economy, mention can be made of the Action Plan for Champion Sectors in Services,[3] which focuses on the

[3] MCI (2023): Centre formulates 'Action Plan for Champion Sectors in Services' to give focused attention to 12 identified Champion Services Sectors.

mentioned service groups. In addition, India's strengths in this area include the aforementioned skilled and inexpensive IT workforce, who is also fluent in English. India has also invested in recent years in building telecommunications infrastructure and in new technologies such as artificial intelligence and big data. The post-pandemic growth in global demand for information technology services in particular has put India at the forefront of this field. Within the sub-categories in these two groups of services, it is possible to identify those that contribute significantly to India's services exports. For both groups, computer services and professional and management consultancy services account for almost the same value of exports at USD 95.52 billion and USD 95.99 billion respectively. Thus, they constitute the 2 service categories that are the most exported and together accounted for 62% of India's total services exports in 2022. On the other hand, in transport services, LI has a high negative value of -15.6, but the same group of services was the fourth most exported in 2022 and contributes about 12% to India's total services exports since 2005. The significantly higher share of this group of services may be due to some specific advantages of the Indian economy, such as lower transport costs compared to other economies. Looking at the different sub-categories of services within this group, we can identify sea and air freight as the services that dominate this service group and together account for 64% of the share within this group (sea freight 47%, airfreight 17%).

Table 3: LI for each service group, 2022

Group of services	LI
Telecommunications, computer and information services	**12,45142517**
Other business services	**7,90792021**
Unallocated services	**0,843684274**
Production services on the basis of physical inputs owned by others	**0,186303922**
Financial services	**0,001553765**
Construction	-0,034923244
Government goods and services	-0,082297233
Maintenance and repair services	-0,299341921
Personal, cultural and recreational services	-0,43484984
Insurance and pension services	-1,362881125
Travel	-1,71413377
Fees for the use of intellectual property	-1,879054559
Transport	-15,58340565

Note: in bold, service groups with LI>1.
Source: Authors, TRADEMAP (2024).

Conclusion

During the first two decades of the 21st century, there were two important trends in the development of the world economy. The first is the growth in the share of services in world GDP, which has reached more than 62%. The second trend is the growth of world exports and imports of services over the period 2000-2022, apart from the crisis years 2008-2009 (global financial crisis) and 2019-2020 (COVID pandemic).

Concerning the research questions 1. What kind of changes have taken place in India's services trade during the first two decades of the 21st century? 2. What are India's comparative advantages in services trade? 3. What will be the trend of India's exports and imports of services by 2030? we state the following:

1. during the first two decades of the 21st century, there were no significant changes in India's exports or imports of services, and thus India traded the same groups of services throughout the period under review,
2. comparative advantages of India's trade in services can be seen in categories telecommunications, computer and information services and other business services,
3. we predict India's exports of services to double by 2030 and a slight increase of 8% of imports of services indicating the transition of India's economy towards the services.

For further research on the above issue and as far as the limitations of our research are concerned, we recommend that further research should focus on various sub-sectors of services as per the Balance of Payments and International Investment Position Manual classification. As well as their share in export and import flows in India's foreign trade in services in order to identify India's comparative advantages in trade in services and to formulate recommendations for further development of this sector in the Indian economy.

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LEGAL REGIME OF THE NORTHERN SEA ROUTE – SOME OF THE DISPUTED ISSUES

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Abstract: The article discusses the debatable aspects of the legal regime of the Northern Sea Route as an important maritime route of the Russian Federation. The legal regime of the NSR is based on the UNCLOS international law, but it is extended by national acts of the Russian Federation adopted on the basis of Article 234 of the UNCLOS, which cause certain controversies. The aim of the article is not to analyze in detail the entire legal regime of the NSR, but to point out its critical or disputed issues.
Keywords: NSR, Russian Federation, Arctic, navigation.
JEL: K33

Introduction

The Northern Sea Route ("Sévernyy morskoy put'", NSR) is the Russian part of the Northeast Passage located in the exclusive economic zone of the Russian Federation. It does not include the Barents Sea, but since it represents most of the Northeast Passage, this name is sometimes used for the entire route. However, the difference lies in the jurisdiction exercised by the Russian Federation on its part of the route and different rules for navigation. NSR has an undeniable historical and economic significance for the Russian Federation.

In the article 5.1 of 1999 Merchant Shipping Code as ammended by Federal Law No. 132-FZ states that NSR consists of "a water area adjoining the northern coast of the Russian Federation, including internal sea waters, territorial sea, contiguous zone and exclusive economic zone of the Russian Federation, and limited in the East by the line delimitating the sea areas with the United States of America and by the parallel of the Dezhnev Cape in the Bering Strait; in the West, by the meridian of the Cape Zhelanie to the Novaya Zemlya archipelago, by the east coastal line of the Novaya Zemlya archipelago and the western limits of the Matochkin Shar, Kara Gates, Yugorski Shar Straits."[1]

The amendment introduced the term "water area" ("akvatoriyum"). In particular, according to this new definition, the NSR does not exceed 200 NM from the baselines of Russia. This is quite an important innovation, as the 1990 Regulations were ambiguous regarding the northern borders of the NSR.[2]

The NSR combines several legal regimes - internal waters, territorial sea, contiguous zone, and exclusive economic zone, which bring with them a range of rights for other states (exclusion of freedom of navigation, right of peaceful passage, right of transit). The legal regime of the NSR is based on the UNCLOS international law, but it is extended by national acts of the Russian Federation adopted on the basis of Article 234 of the UNCLOS, which cause certain controversies. In order for ships to enter the water area, they must obtain permission from the national authorities. The Rules of Navigation on the Water Area of the Northern Sea Route also stipulate other conditions, such as the assistance of icebreakers, etc.

[1] The Federal Law of July 28, 2012, N 132 FZ "On Amendments to Certain Legislative Acts of the Russian Federation Concerning State Regulation of Merchant Shipping on the Water Area of the Northern Sea Route"
[2] SOLSKI, J. J. (2020): New Russian legislative approaches and navigational rights within the Northern Sea Route (NSR) (earlier version of the article published in *The Yearbook of Polar Law*, Vol 12, 2020 by Brill Nijhoff).

The aim of the article is to point out disputed issues of the legal regime of the NSR, thus the article does not provide its comprehensive analysis. We are focusing on the issues of straight baselines, international straits, the Article 234 UNCLOS, and briefly on the lastest amendment of the national legislation.

1 Delimitation on the basis of straight baselines and the international straits issue

The UN Convention on the Law of the Sea (UNCLOS, 1982) applies to the NSR. On the basis of UNCLOS, the right of innocent passage applies in the territorial sea of the coastal state, and in the contiguous zone and in the exclusive economic zone, vessels of all states have freedom of navigation and may not be restricted in navigation in any way. In contrast to the territorial sea, the right of peaceful passage does not apply in internal waters, which are waters extending landward from the baseline of the coastal sea, only if the internal waters were constituted using straight baselines,[3] which is the case of the NSR.

The difference between straight and normal baselines is that normal baselines follow the coast and straight baselines connect the corresponding points of a coast which is deeply indented and cut into (or a fringe of islands is located near the coast).

Canada also relied on this provision of Article 7 of UNCLOS to delimit its baselines and in 1985 defined its baselines using the method of straight baselines. The waters of the Arctic Archipelago thus became part of the internal waters, which are considered part of the state territory and subject to state sovereignty. For the purposes of navigation they share a similar legal regime as the mainland or ports. Canada conditions the transit of non-Canadian vessels to prior approval.

The Russian Federation claims its 4 main straits of the NSR - Kara Gate, Vilkitsky Strait, Dmitry Laptev Strait, and Sannikov Strait - as its internal waters.[4] The right to navigate in internal waters is not claimable, and all foreign ships wishing to enter internal waters, even without the intention of calling at a port, must obtain prior permission from the coastal state. This requirement applies equally to all foreign vessels, whether commercial or marine. However, in connection with Article 8 par. 2 UNCLOS, if areas that did not originally belong there were included in the internal waters (which applies to this case of straight baselines), the right of peaceful passage applies to these waters.

The USSR delineated straight baselines in the Arctic by 1985 Decree. As a party to the 1958 Convention on the Territorial Sea, the USSR was bound by Article 5 par. 2 of this Convention, which maintains the right of peaceful passage where straight baselines delimit the territorial sea or the high seas. In 2021, Russia revised its Arctic baselines, at which time Russia was bound by the 1958 Convention and an identical provision contained in UNCLOS. Furthermore, neither the 1985 nor the 2021 Russian Acts claim that the lines delineate a historic claim to internal waters, as did Canada's 1985 Regulation Establishing Straight Baselines in the Arctic.[5]

When claiming historic waters, it is necessary to prove that other countries respect the exercise of power of the given coastal state over these waters.

In a diplomatic note sent to the Russian Federation on May 29, 2015, the USA disagrees with the Russian Federation’s claim that certain straits used for international navigation in the NSR are internal waters of the Russian Federation. They further note that the legislation characterizes the NSR as a historically established national transport communication route and

[3] TANAKA, Y. (2019): The International Law of the Sea, p. 96
[4] ROSSIJSKAJA FEDERACIJA (2021): Postanovleniye Pravitel'stva Rossiyskoy Federatsii ot 16.11.2021 g. № 1959.
[5] OVERFIELD, C. (2022): Wrangling Warships: Russia’s Proposed Law on Northern Sea Route Navigation.

that they do not consider such a term or concept to be established under international law.[6] According to the USA, it is inconsistent with the freedom of navigation within the exclusive economic zone, the right of peaceful passage in the coastal sea, and the right of transit through straits used for international navigation for the Russian Federation to require foreign-flagged ships to notify through an application for a permit to transit and certificates of adequate insurance. The US recognizes that the legislation is based on Article 234 of UNCLOS, but does not believe that Article 234 justifies a coastal state's requirement for prior notification or permission to exercise navigational rights and freedoms. The same applies to the use of Russian icebreakers and ice pilots.

According to Solski (2020), it seems likely that the only valid argument in support of the view that the waters of the straits were considered internal waters prior to the establishment of straight baselines would be that Russia had successfully asserted a historical claim to the waters in relation to them. The 1985 Decree specifically contains a single list of requirements for historic waters in the Arctic created by Russia. It designates only three areas: the White Sea, the waters of Cheshskaya Bay and only one bay located in the NSR - Baidaratskaya Bay, as waters "historically belonging to the USSR, internal waters".[7]

Overfield (2022) states that under at that time the Soviet Union acknowledged the right of innocent passage in the Vilkitsky Strait and the Kara Gate, even though they are bounded by straight baselines. Moreover, because the USA has expressly rejected the USSR's claim to historical legal title in the Dmitri Laptev and Sannikov Straits, peaceful passage should be the basic regime, even though internal waters.[8]

According to Todorov (2023), the Russian national legal scheme for navigation in NSR is widely recognized and followed by foreign countries, except for the United States, yet it has been the subject of vigorous debates among international lawyers.[9]

2 The Article 234 UNCLOS

The provision of Art. 234 of UNCLOS concerning navigation through ice-covered areas authorizes coastal states to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.

Coastal states can only prescribe standards for foreign ships that do not exceed generally accepted international rules and standards (GAIRAS), which usually means almost universally legally binding maritime transport conventions adopted under the auspices of the IMO, but it is Article 234 that constitutes an exception and strengthens the position of coastal states in polar regions (since it is not explicitly stated that it refers to the Arctic, although some authors literally

[6] OFFICE OF THE LEGAL ADVISER UNITED STATES DEPARTMENT OF STATE (2015): Digest of United States Practice in International Law.

[7] SOLSKI, J. J. (2020): New Russian legislative approaches and navigational rights within the Northern Sea Route (NSR) (earlier version of the article published in *The Yearbook of Polar Law*, Vol 12, 2020 by Brill Nijhoff).

[8] OVERFIELD, C. (2022): Wrangling Warships: Russia's Proposed Law on Northern Sea Route Navigation.

[9] TODOROV, D. (2023): New Russian Law on Northern Sea Route Navigation: Gathering Arctic Storm or Tempest in a Teapot?

state that it was tailor-made for the Arctic).[10] Thus, coastal states can adopt regulations without IMO approval or review.[11]

Maritime transport in ice-covered areas is a real environmental hazard due to the complexity of interventions in dealing with vessel accidents and the much more difficult removal of their environmental consequences, so the ecological focus of Article 234 is justified. However, what poses a problem is the unclear definition of ice-covered areas.

The provision of the article does not define precisely what is meant by the "presence of ice covering such areas for most of the year", nor what exact powers the state gains from it in its exclusive economic zone. One interpretation may be that the state is not granted greater rights than it has in coastal waters, the other is that the state gains broader powers, especially powers to unilaterally accept special requirements for shipbuilding, crewing, and equipment.

In the context of the currently ongoing climate changes, the extent and duration of icing in ice-covered areas is also changing, and we can debate whether the current legislation based on Article 234 will be relevant even if sea routes are ice-free for most of the year.

It is also not a certain application of Art. 234 to international straits, which is crucial in the case of the NSR for the Russian Federation and the NWP and Canada.

We must not forget that relevant regulations can only be adopted on the basis of scientific evidence, must be non-discriminatory and maritime transport and environmental protection must be correlative.

The Article 234 of the UNCLOS has the greatest importance for Canada and the Russian Federation, which have also adopted the relevant laws, the US is limited in adopting such regulations due to the non-ratification of the UNCLOS so far. The adoption of national regulations on the basis of Article 234 may of course cause certain international disagreements, when other states may object to the requirements.

3 National legislation of the Russian Federation concerning the NSR

The Rules of navigation in the waters of the Northern Sea Route ("Pravila plavaniya v akvatorii Severnogo morskogo puti"), introduced by order of the Ministry of Transport no. 7 of January 17, 2013 apply to the NSR. They were developed in accordance with the Code of Commercial Maritime Transport of the Russian Federation, Federal Law No. 132 FZ, national legislation and international standards. The rules, which were in force until 2013, were approved by the Council of Ministers of the USSR in 1990 and fairly adequately reflected the standards of international law.[12]

The rules became more flexible in relation to the ice-class criteria, the voluntary escort of vessels by an icebreaker (however, an icebreaker is required in most transits through the NSR) and create a more transparent tariff system enabling shipowners to plan costs in the long term and it was not necessary to inform the authorities 4 months in advance but only at least 15 working days prior entering the water area of the NSR.

The NSR Navigation Rules were last revised in 2020. According to the Navigation Rules, vessels must obtain permission from national authorities to enter the water area. The rules also set out detailed requirements for access to different areas of the NSR, including ice-breaking assistance, with permits for vessels of different ice classes, seasonal conditions and specific navigation area. The NSR Navigation Rules are only relevant to commercial shipping and do not apply to foreign warships and other non-commercial government vessels.[13]

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[10] KOIVUROVA, T. (s.a.): International Law in the Arctic.

[11] TANAKA, Y. (2019): The International Law of the Sea, p. 383.

[12] BALMASOV, S. (2015): Comments and clarification on existing Russian legislation and regulations for navigation on the NSR. Possible regulatory updates in nearest future.

[13] PRAVITEL'STVO ROSSIYSKOY FEDERATSII. POSTANOVLENIYE ot 18 sentyabrya 2020 g. N 1487 Ob utverzhdenii pravil plavaniya v akvatorii Cevernogo morskogo puti.

In 2013, the Northern Sea Route Administration (NSRA) began its activity and its purpose was to develop the infrastructure and facilitate the process for issuing permits for navigation on the NSR. Currently, the navigation of vessels in the water area of the Northern Sea Route is organized and navigation permits are issued by the State Corporation for Atomic Energy ROSATOM (or its subordinate organization) in accordance with paragraph 3 of Article 5.1 of the Commercial Navigation Code of the Russian Federation.

ROSATOM has also been since 2018 the infrastructure operator of the NSR and is responsible for the organization of navigation along the NSR, the construction of infrastructure facilities, navigation and hydrographic support, as well as a system for ensuring maritime safety in harsh Arctic conditions.[14]

By order of the Government of the Russian Federation of July 23, 2022 based on Federal Law of June 28, 2022 No. 184 FZ "on amendments to Article 5 of the Commercial Transport Code of the Russian Federation" and the Federal Law "on the State Corporation for Atomic Energy 'ROSATOM'", the Northern Sea Route General Administration was established as a federal state budget institution. Its main tasks include ensuring the organization of icebreaker assistance along the shipping routes in the Northern Sea Route area, developing shipping routes, deploying icebreakers in the area and issuing, suspending, renewing and terminating navigation permits.

Controversy was caused by the adoption of law of December 5, 2022, the purpose of which was to limit the navigation of foreign warships in the NSR. With the adoption of this law, it was confirmed that the above-mentioned 2013 Rules of navigation apply only to commercial ships and do not apply to foreign warships and other non-commercial government vessels. According to this law, the flag state is obliged to apply for a permit to enter NSR internal waters 90 days before the passage, the number of warships is limited to one, unless with a special permit. Submarines must surface and show the flag while passing through the NSR. We must not overlook the government's right to deny entry for security reasons.[15]

Despite the controversial reactions, these new requirements only apply to a small part of the NSR, as they are applied exclusively to the internal waters of the NSR. Here we return again to the different view of Russia and the USA on internal waters and international straits intended for international navigation.

Conclusion

The article examined selected aspects of the legal regime of the Northern Sea Route as the most important sea route of the Russian Federation. Due to its economic importance, several disputes are connected with it regarding some aspects of its legal regime.

In the first part of the article, we examined the impact of the definition of direct baselines, which has an impact on the inclusion of these waters among internal waters with the modification of the right to innocent passage in the context of Art. 8 par. 2 UNCLOS. We pointed out the different perception of selected straits from the point of view of the Russian Federation (internal waters) and the USA (international straits open for international navigation to all ships).

In the following section, we analyzed in more detail Article 234 of the UNCLOS, which serves as a legal title for the adoption of national legislation. We have pointed out the ambiguities contained in this article.

In the final part, we defined the adopted national legislation of the Russian Federation applied in the NSR based on the Art. 234 of the UNCLOS.

[14] ROSATOM (2023): In 2023, ROSATOM plans to implement nearly a third of the total amount of Russia's dredging operations at 6 sites in the NSR water area.

[15] TODOROV, A. (2023): New Russian Law on Northern Sea Route Navigation: Gathering Arctic Storm or Tempest in a Teapot?

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RECOVERY AND RESILIENCE PLAN AND EU INNOVATION POLICY

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Abstract: The way to ensure the competitiveness of EU member states against other states is to support technical development and research. One of the decisive factors of support are correct political decisions and financial instruments aimed at science, research and education. The Recovery and Resilience Plan is one of the political and financial instruments of the EU, which is supposed to improve the position of the EU member states after the crisis period of 2020-2021. The aim of the article is to name the main political and financial instruments of the EU supporting science and research and a quantitative analysis of the investment of the EU member states as a percentage of GDP and a comparison with the world's best innovators. The Slovak Republic will be included in the analysis as a margin.
Keywords: innovation policy, Recovery and resilience plan, research and development, GDP
JEL: F15, H52, O32

Introduction

Innovations are becoming a key element of the competitiveness of the economy of every state. The EU's strategy to revitalise Europe economically was the *Europe 2020 Strategy*, having growth and jobs as its main target. The main features of the Strategy were determined by the consequences of the financial and economic crisis, and the targets to be achieved by 2020 through initiatives were set accordingly. The targets were naturally adapted to the economic, financial and social situation that emerged after 2010.

The 5 main targets were supported by the creation of 7 initiatives, with certain targets and initiatives directly related to innovation policy. The most important EU target was to invest 3% of EU GDP in science and research. One of the initiatives, through which it was to achieve this target, was the Europe’s Innovation Union, or alternatively, the *Digital Agenda for Europe*. In this context, it should be noted that individual Member States could set their own targets - i.e. a total of 5 target parameters. The *Europe 2020 Strategy* was implemented through the economic policy guidelines of the EU countries and the EU itself and on the basis of recommendations for each Member State. The implementation of the recommendations was regularly monitored by the European Commission.[1]

One of the three enablers of innovation policy is investment.[2] Coming from the assumption that investment in science and research positively influences the innovation performance of EU Member States or world innovation leaders, we will illustrate this assumption through examples of some economies. The framework for the analysis was the *Europe 2020 Strategy*'s target for science and research - to invest 3% of EU Member States' GDP.

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[2] COOK, J. – VORLEY, T. (2021): Recovery and resilience: how can innovation policy support the response In Productivity and the pandemic : Challenges and insights from Covid-19, p. 8.

1 Starting points for EU innovation policy

Like the Lisbon Strategy, the *Europe 2020 Strategy* has not been evaluated at a global European level; statistical indicators are available according to the targets as they were quantified. As for the indicator on investment in science and research, the EU has set a target of investing 3% of EU GDP in science and research by 2020. Member States had the possibility to set their own targets within their respective capabilities for this target as well - the Slovak Republic set its target for investment in science and research of 1.2% of the Slovak Republic's GDP, which was the lowest target set within the EU after Cyprus (0.5% of GDP) and similar to the one set by Italy (1.53% of GDP). Sweden and Finland set the highest targets, at 4% of GDP.[3] In 2017, the largest innovation competitors were at 4.55% of GDP for investment in science and research - South Korea 4.55% of GDP, Japan 3.2% of GDP, the United States 2.78% of GDP, China (excluding Hong Kong) 2.15% of GDP, while the EU invested on average only 2.07% of GDP in science and research.[4]

At the end of the assessment period in 2020, no Member State had met its target for science and research funding as a percentage of GDP - the EU invested only 2.3% of GDP in science and research, the Member States that invested the most were Belgium and Sweden at 3.5% of GDP each, and Slovakia, together with Cyprus, ranked 4th and 5th from the bottom, respectively, investing 0.9% of GDP in science and research.[5] The world's top innovators in 2020 invested much more in science and research as a % of GDP - South Korea 4.8%, USA 3.47%, Japan 3.27% and China 2.41%.[6]

There is a platform for grouping, strengthening and coordinating research activities across the EU, called the *European Research Area*. Its main task is to strengthen the science and research activities of EU Member States to compete with the world's innovation leaders. The European Institute of Innovation and Technology provides the institutional backbone for the so-called *knowledge triangle* - higher education institutions, research institutions and the business sector.

Funding for innovation and project innovation activities is provided through private sources such as corporate sources, bank sources, venture capital sources and business angels. Public sources come from the state budget and EU funds. Private-public partnerships are another funding option, in cooperation with public authorities and the private sector.[7] Funding for science and research in EU Member States is also provided through EU funds, in the 2014 - 2020 programming period this was through the *Horizon 2020* programme for a total of €77.028 billion.[8]

The assessment of innovation performance across the EU for all Member States is provided by the *European Innovation Scoreboard (EIS)*, with Sweden, Finland, Denmark and Belgium ranked in the best performing group of innovation leaders over the long term. Germany has fallen in its ranking into the group of successful innovators in the 2022 assessment.[9] Slovakia dropped from the third group of moderate innovators in 2020 (the EIS assessment is

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[3] EUROSTAT (2024):File:Gross domestic expenditure on R&D (R&D intensity), by country; 2008 and 2014.png

[4] EURÓPSKY DVOR AUDITOROV: OSOBITNÁ SPRÁVA 16/2020 (2020): Európsky semester – odporúčania pre jednotlivé krajiny riešia dôležité problémy, ich vykonávanie je však potrebné zlepšiť, p. 17.

[5] EUROSTAT (2021): R&D expenditure in the EU at 2.3% of GDP in 2020.

[6] THE WORLD BANK (2024): Research and development expenditure (% of GDP).

[7] BURGER, P. (2016): Inovačná a klastrová politika, pp. 34-43.

[8] NARIADENIE EURÓPSKEHO PARLAMENTU A RADY (EÚ) č. 1291/2013 z 11. decembra 2013, ktorým sa zriaďuje program Horizont 2020 – rámcový program pre výskum a inováciu (2014 – 2020) a zrušuje rozhodnutie č. 1982/2006/ES

[9] EUROPEAN COMMISSION. Directorate-General For Research And Innovation, HOLLANDERS, H. (2023): European Innovation Scoreboard 2023.

published in 2021) into the last group - the fourth group of weaker innovators, in which it was also ranked in 2022- 2023.[10]

A more global view of the state of innovation performance of EU Member States is provided by the *Global Innovation Index (GII)*. On the positive side for Europe, Switzerland has been ranked 1st in the ranking for the last 10 years (since 2013), albeit with a deteriorating score. In 2023, Sweden is ranked 2nd, the United States 3rd, Finland 6th, South Korea 10th, China 12th and Japan 13th.[11]

Investment in research and development (R&D) is a key input for innovation by both business and government, and increasing overall investment in countries is key to innovation-led growth. However, the structure of this investment is as important as the quantity.[12] The balance of focus on the economic and societal outcomes of innovation policy has implications for how and where investment - particularly grant schemes - is directed. Consequently, R&D and other investment support would need to reflect areas of acute financial scarcity, e.g. stage, sector/technology and location. Such prioritisation could present an opportunity to reassess funding towards sectors and targets where market failures are greatest.[13]

Table 1: Ranking of countries in GII, EIS and expenditure on R&D as %of GDP in 2022

Country	*Rank in GII/pillar 2.*	*Rank in EIS/ dimension Finance and Support*	*% of GDP*
Switzerland	1./6.	-	3.31
Denmark	9./9.	1./6.	2.89
Sweden	2./3.	2./5.	3.4
Finland	6./5.	3./7.	2.95
Germany	8./4.	7./11.	3.13
USA	3./12.	-	3.46
Republic of Korea	10./1.	-	4.93
China	12./22.	-	2.41
Japan	13./18.	-	3.34
Slovakia	45./53	23./23.	0.98

Source: Eurostat, Global Innovation Index2023, European Innovation Scoreboard 2023

As can be seen from Table 1, investment in science and research as a percentage of GDP may not be the decisive criterion. Rankings of innovation performance (GII and EIS) with different weighting rates assess investments in science and research. While the GII lists investments in science and research (as a % of GDP) within the 2nd pillar of the evaluated areas (out of a total of seven) *Human Capital and Research* in section 2.3. *Research and development*. The EIS evaluates the innovative performance of the EU member states within 12 dimensions, while *Finance and Support* and *Firm Finance* are separately evaluated dimensions.

2 Horizon Europe and the Recovery and Resilience Plan

In July 2020, in response to the COVID-19 crisis, the European Council approved the *NextGenerationEU* temporary recovery facility. Its central element is the *Recovery*

[10] EUROPEAN COMMISSION (2021): European innovation sccoreboard published.
[11] WIPO : Global Innovation Index 2023, p. 10.
[12] MAZZUCATO, M. – DIBB, G.(2020): Innovation Policy And Industrial Strategy For Post-Covid Economic Recovery, p. 1.
[13] COOK, J. – VORLEY, T. (2021): Recovery and resilience: how can innovation policy support the response In Productivity and the pandemic : Challenges and insights from Covid-19, p. 9.

and Resilience Facility (RRF). The RRM represents the bulk of the efforts under the *NextGenerationEU*, accounting for almost 90% of the total financial coverage. On 11 February 2021, the Council adopted a Regulation establishing this mechanism. With €672.5 billion (in 2018 prices), the mechanism will disburse €360 billion in loans (€385.8 billion in current prices) and €312.5 billion in grants (€338 billion in current prices), equivalent to around two-thirds of the new 2021 - 2027 Multiannual Financial Framework in terms of value, and is the EU's largest instrument to date.[14] The purpose of the *Recovery and Resilience Facility* is to mitigate the economic and social impact of the COVID-19 pandemic and to ensure that European economies and societies are more sustainable, resilient and better prepared for the challenges and opportunities presented by the green and digital transformation. It will finance investments and reforms in policy areas of pan-European relevance, which are divided into six pillars, one of its pillars is research, science and innovation. Member States submitted their *Recovery and Resilience Plans* (except the Netherlands) by 1 June 2022, Slovakia's *Recovery and Resilience Plan* was approved by the Commission on 21 June 2021.

For the 2021-2027 programming period, €95.5 billion of funding for science and research in the Member States is secured through *Horizon Europe*, including €5.4 billion from the EU's *NextGenerationEU* instrument. *Horizon Europe* is structured along the lines of the previous science and research funding scheme (Horizon 2020) - it has three pillars comprising 3 funding areas for excellent science (€25.011 billion), areas for the economic and societal development of Member States - "clusters" (€53.516 billion), and funding for institutions that form a common platform for the development of science and research in EU Member States (€3.393 billion); the balance of €1.382 billion is earmarked for the *EUROATOM* programme.[15] In the *Recovery and Resilience Plan*, we can identify 2 pillars that could be considered as priorities for the development of innovation - namely *Digital Transformation* and *Smart, Sustainable and Inclusive Growth*.

In the case of innovation policy, we have to take into account that it is a policy that is dealt with at national level and is highly incoherent.[16] This also means that political decisions are extremely important, because what new related measures are introduced and how they are subsequently implemented is a matter for governance structures and processes.[17]

For the 2021 - 2027 programming period, the EU has increased the science and research budget by almost €20 billion, including the *NextGenerationEU* instrument, compared to the previous programming period, which would meet the expectation that innovation performance should improve relative to the world's innovation leaders.

The *Horizon Europe* priorities have been partially realigned compared to *Horizon 2020* - the priority of excellent science has been retained, industry leadership as a second priority has been more specifically targeted at several areas of the economy in the form of clusters, including societal challenges; the third priority focuses on the institutional anchoring of EU innovation policy. Key indicators of how impact is achieved include scientific impact, societal impact, technological impact and economic impact.[18]

The science and research part of the *Recovery and Resilience Plan* instrument under *Heading 1 Single market, innovation and digital*, with €5.41 billion, is the smallest share of

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[14] EURÓPSKA RADA (2024): Plán obnovy pre Európu.

[15] EUROPEAN COMMISSION, DIRECTORATE-GENERAL FOR RESEARCH AND INNOVATION.(2021): Horizon Europe, budget – Horizon Europe - the most ambitious EU research & innovation programme ever, p. 4.

[16] STRYJEK, J. (2021) Counteracting the COVID-19 Crisis with Innovation Policy Tools: A Case Study of the EU's Supranational, p. 464.

[17] DACHS, B. – WEBER. M. (2022): National recovery packages, innovation, and transformation. Project for the Austrian Council for Research and Technology Development, p. 9.

[18] NARIADENIE EURÓPSKEHO PARLAMENTU A RADY (EÚ) 2021/695 z 28. apríla 2021, ktorým sa zriaďuje Horizont Európa – rámcový program pre výskum a inovácie, stanovujú jeho pravidlá účasti a šírenia a zrušujú nariadenia (EÚ) č. 1290/2013 a (EÚ) č. 1291/2013.

the total amount of the *NextGenerationEU* instrument and does not reflect the needs of science and research beyond the 2020-2021 crisis period.

The pandemic has highlighted the opportunity and need for a change in innovation policy. It will therefore be important for policy makers to rethink the track record of innovation policy and reassess the balance between economic and societal objectives. In the Recovery and Resilience Plan of the Slovak Republic, 670 million EUR out of a total amount of 6.410 billion EUR was allocated for science, research and innovation. In the field of science, research and innovation, Slovakia has set 2 components - *More effective management and strengthening of funding for research, development, innovation* and the digital economy, and *Attracting and retaining talent.*

Conclusion

The consequences of the crisis caused by the disease COVID-19 manifested themselves not only in the economic, but also in the social policy of the EU Member States, while they had a different impact on individual states and their inhabitants. The pandemic has highlighted the opportunity and the need to change innovation policy. It will therefore be important for policy makers to re-evaluate the outcomes of innovation policy and re-evaluate the balance between economic and social objectives.[19] It seems that crisis phenomena will be a permanent part of the existence of the EU and it will be important how the institutions take measures at the pan-European level and whether these measures will be trusted by the governments of the member states.

Innovation policy could be seen as one of the areas where the primary needs of EU residents should be manifested to a large extent, especially their needs in the field of education, health protection, availability of services, etc. On the other hand, innovation policy instruments should make the EU a competitive economy, but this will not be easy in the current geopolitical situation. Finances from the Recovery and Resilience Plan will definitely not be enough, even if financial incentives are only one of the measurable parameters of the success of the innovation policy.

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[19] COOK, J.- AND VORLEY,T. (2021) Recovery and resilience: how can innovation policy support the response In Productivity and the pandemic : Challenges and insights from Covid-19, p. 10.

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13. NARIADENIE EURÓPSKEHO PARLAMENTU A RADY (EÚ) č. 1291/2013 z 11. decembra 2013, ktorým sa zriaďuje program Horizont 2020 – rámcový program pre výskum a inováciu (2014 – 2020) a zrušuje rozhodnutie č. 1982/2006/ES [online]. [Cited 25.5.2024.] Aviable on: https://eur-lex.europa.eu/legalcontent/SK/TXT/PDF/?uri= CELEX: 32013R1291
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SLOVAKIA AND EMISSION REDUCTION

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Abstract: Climate change and its adverse effects have become one of the most urgent issues we face today. Global initiatives and agreements such as the Paris Agreement on Climate Change and the Sustainable Development Goals (SDGs) show us the path towards a future with lower greenhouse gas emissions and sustainable economic development. The European Union has committed to achieving carbon neutrality by 2050 and has developed a legislative framework to promote the use of renewable energy sources and reduce emissions. In this article, we focus on Slovakia and its efforts to achieve energy transformation and reduce CO^2 emissions. We analyze its current energy mix, goals, and strategies regarding renewable energy sources and emission reduction, as well as challenges and solutions in this area. We also explore concepts of sustainable development and economic degrowth as different approaches to addressing challenges associated with economic growth and its impact on the environment. Finally, we focus on technological innovations and policies that can contribute to reducing CO^2 emissions in various sectors. This article aims to provide an overview of the current state and future prospects of Slovakia in the context of combating climate change and achieving sustainable development. In this article we use quantitative research methodology, mainly data collection and descriptive methodology to analyze Slovakia's energy policy, renewable energy sources, and CO^2 emissions. The article utilizes a descriptive and analytical approach based on secondary data, legislative content analysis, and comparative analysis.
Key words: climate change, CO^2 emissions, energy
JEL: F64, F63, O13

Introduction

The future of the planet depends on many of our ecological decisions, not just in recycling but also in consumption. Natural gas, its extraction, distribution, and consumption are closely linked to this issue and are directly dependent on the ecological solutions of governments. Carbon capture schemes and renewable energy production have long been known topics, but they do not address common prices for energy consumers and users. One of the key environmental challenges for Slovakia is to embed climate neutrality into domestic law, but national forecasts suggest that Slovakia is not on track for net-zero emissions. We will address this issue in the following sections of the article.

1 European Union legislation on renewable resources

The main global climate initiatives and agreements are the Paris Agreement on climate change and the Sustainable Development Goals (SDGs). These documents require the European Union, which has committed to achieving carbon neutrality by 2050, to produce a certain amount of CO^2 that it will need to capture naturally or artificially. The legislative framework for increasing the use of renewable sources includes the Renewable Energy Directive (RED II), which sets a target of at least 32% renewable energy share in total energy consumption in the EU by 2030.[1] Subsequently, the Clean Energy for All Europeans package focuses exclusively on the energy market and its transformation, as well as support for renewable energy sources.[2] The plan to achieve climate neutrality by 2050 is outlined in the European Green Deal.[3] The Commission REPowerEU Plan of 2022 aims to reduce the EU's dependence on fossil fuel imports, particularly from the Russian Federation, with almost €300 billion allocated for reforms associated with the plan, including €72 billion from grants and the rest from loans.[4] The recovery and resilience plan mechanism is intended to be the basis for financing. The Fit for 55 package, consisting of legislative proposals from the European Commission, aims to reduce emissions by 55% by 2030 compared to 1990.[5] National plans and goals of individual EU member states are also crucial components of the EU's legislative framework on renewable sources and meeting EU targets. Member states are required to implement their own national energy and climate plans in line with EU objectives.

2 Slovakia and renewable sources

To properly address the issues discussed in the article, we need to define the concept of renewable energy sources. According to Law No. 306/2022 Coll., which amends and supplements Law No. 309/2009 Coll. on the promotion of renewable energy sources and highly efficient combined production and amending and supplementing certain laws in the subsequent regulations, renewable energy sources are defined as non-fossil energy sources, including hydro energy, wind energy, solar energy, geothermal energy, ambient energy, biomass, biogas, landfill gas, sewage treatment plant gas, and tidal, wave, and other ocean energy.[6]

As of today, Slovakia's national energy mix[7] consists of 48,6% fossil sources, 46,7% nuclear, and 4,69% renewable sources, with biomass being the largest component. Slovakia approved its energy policy until 2035 with a perspective until 2050 in 2014. According to this policy, Slovakia's strategic goal is to ensure secure, efficient, and reliable energy supply at acceptable prices, considering sustainable development and consumer protection.[8] According to the National Energy and Climate Plan, Slovakia has committed to reducing greenhouse gas emissions by 30% by 2030 compared to 2005 It has also pledged to increase the share of renewables in gross final energy consumption to 19,2% by 2030 and achieve energy savings of 30,3% by 2030.[9] However, according to the commission, this goal is not ambitious enough. Slovakia currently lags behind other EU member states in the share of renewable energy sources. To support renewable sources in Slovakia, the Recovery and Resilience Plan of Slovakia is intended, with a total funding of €6,4 billion, and Slovakia is currently awaiting the disbursement of four payments.[10]

The National Strategy identifies several risks in the area of renewable energy sources, including a lack of funds, financial stability for changes in financial priorities and policies, uncertainty due to changes in legislation and regulatory frameworks. Also problematic is

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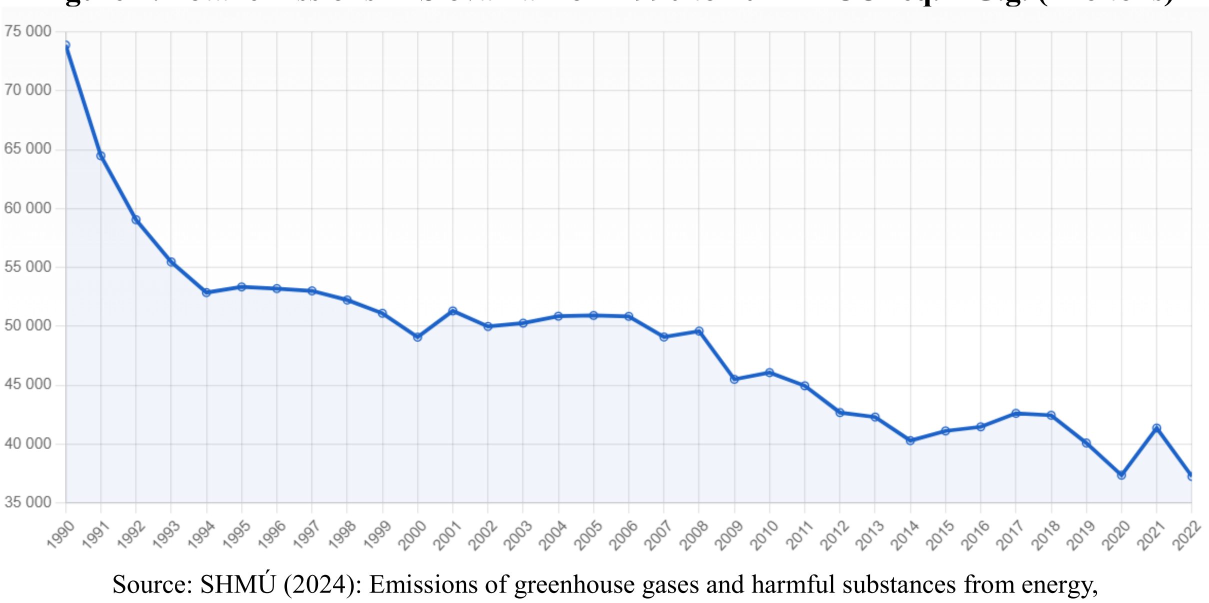
[1] EUROPEAN PARLIAMENT AND EUROPEAN COUNCIL on supporting the use of energy from renewable sources, (2018).
[2] EUROPEAN COMMISSION (2019): Clean energy for all Europeans.
[3] EUROPEAN COMMISSION (2019): European Green Deal.
[4] EUROPEAN COMMISSION (2022): REPowerEU.
[5] EUROPEAN COUNCIL (2024): Fit for 55.
[6] NR SR (2022): Zákon č. 363/2022 Z. z., ktorým sa mení a dopĺňa zákon č. 309/2009 Z. z. o podpore obnoviteľných zdrojov energie a vysoko účinnej kombinovanej výroby a o zmene a doplnení niektorých zákonov v znení neskorších predpisov a ktorým sa menia a dopĺňajú niektoré zákony.
[7] OKTE (2024): Národný energetický mix.
[8] MH SR (2019): Integrovaný národný energetický a klimatický plán na roky 2021 – 2030.
[9] MH SR (2019): Integrovaný národný energetický a klimatický plán na roky 2021 – 2030.
[10] PLÁN OBNOVY A ODOLNOSTI SR (2024).

the integration of renewables into the grid and electricity distribution. Limited opportunities for the construction of renewable energy facilities due to geographic and spatial conditions are also a concern. For example, in the case of wind energy, turbulent wind flows prevail in Slovakia, and areas suitable for wind farm construction are mainly located in national parks or protected landscape areas, where construction costs would be very high. The main risks in solar energy production are fluctuating production, which negatively affects the reliability and safety of operating the power grid. Regarding hydro energy, a large portion of the potential generated energy comes from small streams, which can only be utilized in small hydroelectric power plants with capacities up to 10 MW.[11]

3 Slovakia and CO^2 emissions

According to the European Parliament, Slovakia's share of the EU's total greenhouse gas emissions is around 1,1% and the country has reduced emissions similarly to the EU between 2005 and 2019. What poses a problem for the country is the intensity of the Slovak economy, which is well above the EU[12] average and accounts for 37% of total emissions. This also results in a high share of automotive and steel production (U.S. STEEL Košice emitted 7396 million tonnes of greenhouse gas emissions in 2023[13]), which have a significant share in Slovakia's GDP. In 2019, Slovakia was responsible for 41.9 million tonnes of CO^2, but in 2022, as the graph indicates, the emitted emissions dropped to about 38 million tonnes of CO^2. As the graph below indicates, Slovakia is gradually reducing its total emitted emissions, but it is questionable whether this is sufficient and whether more drastic reductions will be able to keep the country's economy thriving, as in other countries.

Figure 1: Total emissions in Slovakia from 1990 to 2022 in CO^2 eq. – G.g. (kilo tons)



Source: SHMÚ (2024): Emissions of greenhouse gases and harmful substances from energy, including transport and households.

The challenges in reducing CO^2 emissions are many. Although the share of renewables in the Slovak energy sector is increasing, Slovakia is still heavily dependent on fossil fuel supplies. Another challenge is the need for investment, technology and adaptation of the regulatory framework. Cooperation between industry, civil society, government and

[11] MH SR (2019): Integrovaný národný energetický a klimatický plán na roky 2021 – 2030.
[12] EUROPEAN PARLIAMENT (2021): Opatrenia v oblasti klímy na Slovensku. Aktuálna situácia.
[13] ENERGIE PORTAL (2024): Oceliarne, rafinéria, cementárne. Ktoré podniky na Slovensku vlani vypustili najviac emisií (+grafy).

international partners is also essential to reduce emissions. Reducing emissions is one of the main objectives of the Slovak Republic in achieving climate goals and ensuring sustainable development.

The issue of sustainable development is one of the other issues that states should address. It is the concept of balancing economic growth and environmental protection so that people can meet their own needs without compromising the ability to meet the needs of future generations. Stable economic growth, social inclusion and environmental protection are therefore important. The main objectives are poverty reduction, maintaining biodiversity and combating climate change, and a stable economic environment. They should be achieved by combining environmental, economic and social objectives. The second concept is economic growth, which proposes limiting or reducing economic growth in order to achieve environmental and social goals.[14] The concept emphasises and prioritises quality of life and sustainability over economic growth. The main objectives are to reduce overall consumption and production, to distribute resources more equitably and to improve quality of life. Instead of GDP indicators of economic prosperity, the concept of non-growth proposes the use of indicators such as the Gini index or the Happiness Index. The concept promotes recycling and reuse of resources.

Table 1: Comparison of the concepts of sustainable development and economic degrowth

	SUSTAINABLE DEVELOPMENT	ECONOMIC DEGROWTH
GOALS	Poverty reduction, environmental protection, economic prosperity	Reduction of consumption and production, redistribution of wealth, improvement of quality of life
APPROACHES	Integrated policies, international cooperation, technological innovations	Alternative indicators of prosperity, circular economy, local and community development
MAIN INDICATOR	GDP, environmental and social indicators	Happiness index, Gini index instead of GDP
FOCUS	Balancing economic growth, social inclusion and environmental protection	Reducing economic growth for ecological and social goals

Source: author

Sustainable development seeks to harmonise growth with sustainability, and economic mineralisation aims to limit growth in order to achieve environmental and social goals. Both concepts can contribute to the debate on how to achieve a sustainable and equitable future, but it is difficult to imagine that they will be fully politically endorsed and economically implemented in the national strategies of states.

4 Technological solutions to solve CO^2 emission reduction

There are different solutions to reduce emissions. These include technologies, policies, targeting different sectors including energy, transport, agriculture and industry. In the building

[14] INESS (2023): Svetom sa valí nová ideológia, ktorá hlása „ekonomický nerast“. Odborníci pred touto utópiou dvíhajú varovný prst.

sector, the plan for reducing emissions is mainly based on measures to improve the energy efficiency of buildings (solar panels on roofs, heat recovery, thermal insulation of buildings, heat pumps). The energy sector focuses on smart grids, smart grids and energy efficient appliances by applying the latest technologies. Among other things, the European Union has introduced an emissions trading scheme. Another option is Carbon Capture and Storage or Carob Capture Utilisation and Storage technology. This technology is captured and injected into deep geological formations such as depleted oil or gas deposits.[15] CCUS technology is therefore able to partially offset emissions that are unavoidable or difficult to reduce. The advantage of this technology is that it can deal with emissions in sectors where they are difficult to reduce, such as heavy industry. In transport, new technologies to reduce emissions are mainly related to the introduction of biofuels and the promotion of electric vehicles and charging infrastructure. In industry, efficient production technologies, the application of recycling and circular economy and the development of chemical processes that minimise waste emissions are used to reduce CO^2 emissions. Regenerative agriculture, agroforestry and afforestation are solutions being adopted to reduce carbon emissions. The combination of all these solutions is key to effectively reducing carbon emissions to combat climate change. Sustainable development and economic minerals represent two different approaches to addressing the challenges of economic growth and its environmental impacts. All the above listed solutions may be implemented, when upported by appropriate policies and incentives, not only in the EU but also in the Slovak Republic.

5 Technological solutions to reduce CO^2 emissions in Slovak Republic

Slovakia, a country known for its diverse landscapes and burgeoning technology sector, is increasingly turning to innovative technological solutions to address the pressing issue of CO^2 emissions. The country’s commitment to sustainable development and alignment with the European Union's climate goals has spurred a variety of initiatives aimed at reducing its carbon footprint. These initiatives are present in multiple sectors, including energy, transportation, industry, and waste management, leveraging advanced technologies to create a more sustainable future.

One of the cornerstone strategies in (as in many contries in the European Union) Slovakia's approach to reducing CO^2 emissions is the transition to renewable energy sources. Slovakia has made significant investments in solar, biogas energy, wind, and hydroelectric power. For instance, solar power installations have been increasing, supported by government incentives and decreasing costs of photovoltaic technology. Slovakia is also making strides in energy efficiency, particularly in the building sector. The implementation of smart grid technologies and energy-efficient building designs are crucial elements in this effort. Smart grids enable more efficient distribution and use of electricity, reducing waste and lowering emissions.

The transportation sector in Slovakia is undergoing a transformation as well. The government has introduced policies to promote electric vehicles and improve public transportation infrastructure. Hovewer there are various challanges, and limitations associated with electric vehicles that need to be addressed. One of the most significant issues with electric cars is the current state of battery technology, and high amount of energy used in the battery production. Another significant problem is the amount of charging stations. Home charging solutions are limited by the electrical capacity of residential buildings, particularly in older structures. Although EVs produce zero tailpipe emissions, their overall environmental impact is not entirely negligible. The production of lithium-ion batteries, which power most electric cars, involves mining and processing raw materials such as lithium, cobalt, and nickel. These

[15] IEA (2024): Carbon Capture, Utilisation and Storage.

processes can be environmentally damaging. Furthermore, the disposal and recycling of used batteries present significant environmental challenges, as the current recycling infrastructure is not fully equipped to handle the anticipated volume of end-of-life EV batteries. The widespread adoption of electric cars will increase demand on electrical grids. In regions where the electricity supply is heavily dependent on fossil fuels, the environmental benefits of EVs can be offset by the carbon emissions from power generation.[16] Upgrading and expanding the grid to handle increased loads, particularly during peak charging times, requires substantial investment in the electrification and transmission system.

Industrial CO^2 emissions, a major challenge in Slovakia, are being tackled through the adoption of cleaner production technologies and the implementation of carbon capture and storage (CCS) systems. Industries are increasingly adopting energy-efficient processes and waste heat recovery systems to minimize emissions. The use of CCS technology is being explored to capture CO^2 emissions from large industrial sources and store them underground, preventing their release into the atmosphere.

In conclusion, Slovakia's approach to reducing CO^2 emissions is multifaceted and technologically advanced. By investing in renewable energy, enhancing energy efficiency, promoting sustainable transportation, modernizing industrial practices, Slovakia is making significant progress towards its environmental goals. These efforts contribute to the global fight against climate change.

Conclusion

The future of Slovakia's energy mix and sustainable development depends on a combination of several measures and innovative technologies. Given the European Union's ambitious targets for reducing greenhouse gas emissions and switching to renewable energy sources, Slovakia faces significant challenges. Despite the current dependence on fossil fuels and nuclear energy, the country has the potential to significantly increase the share of renewables. Slovakia has the potential to achieve carbon neutrality and ensure a stable and affordable energy supply if it continues to implement comprehensive and coordinated measures. The transition to renewables, improving energy efficiency and the use of innovative technologies are the basis for a successful energy policy. With the support of the European Union and the involvement of all relevant actors, Slovakia can contribute to the global effort to combat climate change while strengthening its energy security and economic prosperity.

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SELF-DEFENCE RHETORIC AND INTERNATIONAL LAW

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Abstract: A right to self-defense is recognized as an inherent right of sovereign states in the international law. This self-defense right of states is naturally linked to the concept of sovereignty, but at the same time it is connected to the use of force in international relations. The current dynamics of international relations in the international community, as well as the subsequent argumentation and interpretation by states, indicate the overuse of the concept of self-defense. The aim of this paper is therefore to indicate the limits of the legal use of force in self-defense in the context of the rules of international law.
Keywords: self-defense, right to self-defense, self-defense criteria, pre-emptive self-defense, preventive self-defense
JEL: K33, F51, F53

Introduction

The right to self-defense is a basic concept based on the right to protect oneself. However, both domestic and international law prohibit arbitrary acts of self-help, based on which rights would be enforced unilaterally by force (by individuals or anyone who "feels" entitled to do so). And so in domestic law, as well as in international law, there are rules for the legal use of force in self-defense, in relation to extreme situations that concern survival (individual/state).

Historically, self-defense evolved from the concept of the sovereign's defensive use of force. It was the sovereign right of a state to exercise defensive use of force for protecting itself, and thus, the origin of self-defence is related with protection of state sovereignty.[1] In this context, in international law after 1945, on the one hand, there is in force - the basic mandatory principle of the prohibition of the threat and use of force in international relations. And on the other hand, legal use of force is therefore any use of force with the necessary authorization through a resolution of the UN Security Council, theoretically (in terms of the UN Charter) even in the case of state self-defense. „Despite its relatively decentralized structure, under the current frame of international law, the use of armed force is unlawful unless it is authorized by the Security Council or fits the legal paradigm of self-defence.“[2] In relation to the "backbone of international law", Article 51 of the UN Charter recognizes the inherent right of states to self-defence against armed attack.[3] At the same time, since 1837, "thanks to" the "classic" case of "Caroline", two basic limitations have been started to apply to the legal self-defense of

[1] ADLER, M. C. (2011): The Origin in International Law of the Inherent Right of Self-Defence and Anticipatory Self-Defence, p. 115.
[2] BAKIRCIOGLU, O. (2009): The Right To Self-Defence In National And International Law: The Role Of The Imminence Requirement, p. 8.
[3] Worded as follows: „Nothing in the present Charter shall impair the inherent right of individual or collective self-defence if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security. Measures taken by Members in the exercise of this right of self-defence shall be immediately reported to the Security Council and shall not in any way affect the authority and responsibility of the Security Council under the present Charter to take at any time such action as it deems necessary in order to maintain or restore international peace and security.“ Available online:

the state, namely the criteria of necessity and proportionality, which are now embodied in the widly accepted international custom. It was only after the Caroline dispute where a jurisprudence regarding the practice of self-defence as an act of self-preservation got cemented, which could only be permitted in special circumstances.[4] And despite the fact that it can currently be stated that international treaties are the dominant source of international law, international customary law still represents a significant component (not from the point of view of quantity, but of quality). „The right of a State to use force in self-defence is long-established in customary international law."[5] International treaty regulation, especially through the key provision of Article 51 of the UN Charter, as well as international custom, grant states the right to self-defense, which should meet the criteria of proportionality and necessity, but the ambiguity is related to identifying whether there is the criterion of the "real" armed conflict, or whether imminent threat of such attack is sufficient.

The aim of this paper is therefore to indicate the limits of the legal use of force in self-defense in the context of the rules of international law. Due to the effective achievement of the aim, relevant research procedures and methods were chosen, i.e. basic research methods, especially logical methods (analysis, synthesis, abstraction, induction, deduction), and descriptive-causal methods.

1 Self-defense criteria: proportionality and necessity, armed attack or imminent threat?

The legality of self-defense is based on criteria that vary according to which legal regulation is applied. If we simplify the interpretation of the contractual provisions of the UN Charter in relation to the self-defense of the state - it is possible to indicate that on the self-defensive situations can be applied only the principle of the prohibition of the threat and use of force in international relations , and from that fact, it can be stated that the UN Security Council as the central body of the collective security system, can through its resolutions authorize the use of force and its nature. According to the aforementioned Article 51 of the UN Charter, states have the right to defend themselves, but only if there is an armed attack and until the UNSC takes the necessary measures. The interpretation of the given provision is divided into opinions based on which it is possible to defend only against a real/existing armed attack that has already begun, and supporters of the so-called anticipatory self-defense (averting the threat of imminent attack). The first group of authors interprets Art. 51 literally and restrictively. In order to use force in the name of self-defence, there has to be an actual attack creating actual victim, else the use of force would be illegitimate.[6]

The term "armed attack" is not defined or further explained in the UN Charter. And so it can only be assumed that, for the purposes of Article 51, an armed attack includes not only an attack against the territory of a state, including its airspace and coastal/territorial sea, but also attacks directed against emanations of the state, such as its armed forces or embassies abroad. An "armed attack" is therefore a intentional military action into or against another state without the consent of that state or subsequent consent, which is also not legally justified. In the Nicaragua Case, ICJ denied the idea that an armed attack may include „not only acts by armed bands where such acts occur on a significant scale but also assistance to rebels in the form of the provision of weapons or logistical or other support."[7] If we were to generalize, an armed attack can be considered the physical/real existence of an attack/use of force by one

[4] BROWNLIE, I. (1963): International Law and the Use of Force by States, p. 729.
[5] GREENWOOD, Ch. (2011): Self-Defence.
[6] SHAH, N. A. (2007): Self-defence, Anticipatory Self-defence and Pre-emption: International Law's Response to Terrorism, p. 111.
[7] Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America), International Court Of Justice Judgment Of 26 November 1984, para. 195.

state on the territory/crossing the borders of another state. At the same time, some authors also assume the fulfillment of the requirement of "intent to attack" and/or a certain seriousness, in order to exclude various incidents in which either the intensity is absent or these are the result of a error. This notion was also indirectly confirmed by the ICJ in the "Oil Platforms Case,"[8] in which the ICJ required proof from the US that Iran's actions had a specific intent "specifically targeting" the US or that Iran had a "specific intent" to harm the US. In any case, it must be stated that the given judgement of the ICJ is widely criticized as not supported by international law.

The theory of international law repeatedly refers to self-defense in two key ICJ decisions, namely Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America) and Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v. Uganda). The ICJ in the given cases established a close link between self-defense and aggression. The ICJ considers an armed attack to be the use of armed force in the case of individual or collective self-defense.[9] In relation to collective self-defense, the ICJ adds that "the legality of the use of force by a state in response to an illegal act of which it was not itself a victim is not admitted, if this illegal act is not an armed attack.“[10]

The principal prerequisites to the exercise of the right of self-defence are summarised in terms of necessity and proportionality.[11] The concept of proportionality is used in various legal variations, while it is usually possible to use two different test procedures to assess it. In the first context, the relationship between the act/action and the reaction to this act is assessed. The given reaction in the sense of proportionality should be appropriate to the act that caused it. In the second context, proportionality is assessed according to the damage/harm caused. Therefore, the damage must not be disproportionate in relation to the achievement of even legal goals. In jus ad bellum proportionality has traditionally been used in both of the above senses.[12] In relation to self-defense, it remains questionable whether proportionality is assessed in relation to the force used in self-defense (or means) or whether self-defense is adequate in relation to the damage caused while achieving legitimate and legal goals. In current practice of states, there is an apparent consensus that a defending state can legally use force to stop and repel an armed attack in progress against an enemy. However (and this is also the case of Ukraine) it remains unresolved whether a defending state can perform various acts aimed at preventing and deterring armed attacks by a hostile state.

The necessity criterion is closely linked to proportionality, and it can also be understood in two meanings. The first concept is the assessment of whether the use of means by the state in self-defense was necessary to achieve legitimate goals (self-defense/survival). According to the second concept, it is assessed whether less drastic means exist to achieve the given goals.

In relation to anticipatory self-defense, various approaches have been developed in theory and practice. Although the definitional specifications of these approaches seem very similar – there are significant differentiating nuances regarding primarily the immediacy and possibility of the threat of attack. And while the view that states have the right to act in self-defense to avert the threat of imminent attack (referred to as anticipatory self-defense) is widely accepted, it can be stated that it is not entirely universally recognized and unified. Anticipatory self-defense includes both preventive and pre-emptive self-defense, while it is possible to include any use of defensive force against the threat of a future armed attack under this term

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[8] See Oil Platforms Judgment (Islamic Republic of Iran v. United States of America), International Court Of Justice Judgment Of 12 December 1996.

[9] Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America), International Court Of Justice Judgment Of 26 November 1984, para. 49 and 50.

[10] Ibid para. 211.

[11] EZDI, A. (1974): Self Defence Under Article 51 Of The United Nations Charter: A Critical Analysis, p. 32.

[12] LUBELL, N.(2010): Extraterritorial Use of Force Against Non-State Actors, p. 64.

in the broadest possible sense of the word (and of course not all uses of defensive force are legal in the sense of the currently valid rules). „Anticipatory self-defence is a state´s decision to attack another state that is perceived to have aggresive plans, before the latter attacks the first.“[13] The main argument of the advocates of anticipatory self-defense is the fact that in practice it is unrealistic to assume that self-defense must "wait" for an actual attack. The question of imminence might determine the lawfulness of a state's resort to self-defence, and is often the key factor upon which the legitimacy of anticipatory defensive action will turn.[14]

The most widespread type of anticipatory self-defense is preventive self-defense, which is based on the assumption of potential future threats that may not actually occur. The most significant difference between preventive and preemptive self-defense is in "proximity of threat", i.e. whether the threat is immediate or distant. A classic example of preventive self-defense is the so-called Bush's doctrine, the main argument of which (why use other principles for the use of the right of self-defense than those regulated in treaty and customary international law) is not allowing the acquisition of a military advantage on the part of non-state actors involved in terrorist activities. In any case, preventive self-defense is rejected (by the theory of international law, as well as by the practice of most states) as illegal, given the absence of an immediate threat. In contrast, it is possible for the so-called pre-emptive self-defense to be considered legal because it is the use of defensive force against an armed attack that is imminent and more than likely. This type of self-defense is embedded in international custom that developed after the Caroline incident in 1837, reflecting on the formulation „instant, overwhelming, leaving no choice of means, and no moment for deliberation.“[15]

2 "Rhetorical" problems of the concept of self-defense in international law and the limits of the legal use of self-defense according to international law

Aspects of self-defense are currently present in discussions at the national and international level, as well as in official statements, unilateral acts and speeches of state representatives, as well as in reports and other similar documents, and it is also possible to derive them from the practice of states. This current trend is mainly related to the "fight" against terrorism, and to the growing number of armed conflicts in which non-state actors are involved. In this context, it should also be emphasized that since the creation of the UN, the nature of security threats has fundamentally changed, which is also related to the self-defense argumentation. Most often, as evidence of "legitimacy and illegitimacy, or of legality and obvious illegality" of anticipatory self-defense (regardless of the UN Charter) use three examples, but in none of which we can state a "successful" defense of this concept within the international community. One of the first well-known argumentative attempts includes President Kennedy's statement during the Cuban missile crisis, which is repeatedly mentioned in the context of anticipatory self-defense, namely: "we no longer live in a world where only the actual firing of weapons represents a sufficient challenge to a nation's security to constitute maximum peril.“[16] The second is essentially a classic example of the legal use of force in anticipatory self-defense, namely the case of the 1967 Israeli attack against Egyptian troops assembled on the state border, especially given that it can be subsumed under an imminent threat to the state. Subsequently, the third example mentioned by the theory of international law is the situation from 1981, in which Israel tried to "justify" the attack on the Iraqi nuclear facility Osirak, similar as the attack in 1967. However, the argumentation, although with an emphasis

[13] KUMAR, R. (2014): Iraq War 2003 and the Issue of Pre-emptive and Preventive Self-defence: Implications for the United Nations, p. 124.
[14] LUBELL, N. (2015): The Problem of Imminence in an Uncertain World, pp. 697 and 701-702.
[15] See Caroline Case.
[16] JFK on Nuclear Weapons and Non-Proliferation/ Report to the American People on the Soviet Arms Buildup in Cuba, October 22, 1962.

on national security , was rejected on the grounds that Israel had "unnecessarily" threatened regional security and had not exhausted the peaceful means of resolving international disputes (in the sense of Chapter VI of the UN Charter). The common premise of all three cases is thus an attempt to defend through an emphasis on the protection of national security, although it should be noted that this is not an international legal criterion for the use of force in self-defense. The Israeli attack in 1967 is considered legal and legitimate, due to the fulfillment of the conditions of necessity, proportionality and imminence of the threat, not because of self-defense rhetoric in favor of national security.

In the context of the current situation in the international community, in 2024 the term self-defense is used mainly in connection with the Israeli-Palestinian conflict (this is a recurring phenomenon since the beginning of the conflict) and with the use of force against the Houthi rebels in Yemen (in this particular case with the argument for the purpose of protection navigational rights and freedoms for commercial and naval vessels in the Red Sea).

In relation to the situation after October 7, 2023 in the case of the Israeli-Palestinian conflict, several facts should be noted. The statehood of Palestine is not unambiguous. The theory of international law, as well as the practice of states in this regard, are not uniform, and therefore Palestine cannot be characterized as a universally recognized state. And so, one group (of states as well as theorists) considers Palestine to be a state, albeit largely occupied by the occupying power, which is Israel. Another group is of course in an opposing position. Anyway, Palestine can be viewed through the so-called functional statehood, mainly due to the position of "observer State" in the UN, on the basis of which there is an assumption that it has fulfilled the international legal features of statehood (all the more so after the current recognitions by Norway, Ireland and Spain[17]). Another fact is Israel's status as an occupying power, which has been confirmed several times by the UN Security Council. For example UNSC resolution no. 2720 from 2023 emphasized that "the Gaza Strip constitutes an integral part of the territory occupied in 1967."[18] At the same time, it must be emphasized that the Hamas movement is demonstrably behind the attacks on October 7, 2023, which cannot be attributed to Palestine (whether as a state or not).

From the point of view of case law, in the advisory opinion in the Wall Case[19] - the ICJ denied Israel the "right to protection" from terrorist attacks through the construction of the wall, or barrier, which Israel justified precisely with the right to self-defense. The aforementioned opinion stated that Article 51 of the UN Charter applies to relations between states, and that Israel exercises control over the occupied Palestinian territory and thus cannot defend itself against something it administers. At the same time, the court stated that Israel not only has the right, but also the obligation to protect the population under its control, of course within the limits of international law. And so, it must be emphasized that Israel is not denied the right to defend the security of the state and the life and health of its population, but the given "defense and protection" should meet the features of proportionality and necessity. And due to the complexity of the whole situation, not only from the point of view of the application of the norms of international law (that is, not only in relation to ius ad bellum, but also ius in bello and international human rights law), the given "defensive" acts should be primarily executed in the territory of the State of Israel (military occupation and annexation are not legal titles of acquisition of state territory).

[17] The State of Palestine is officially recognized by 146 countries out of 193 official states of the international community.
[18] See UN Security Council Resolution 2720 (2023).
[19] See ICJ Advisory Opinion: Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory.

In the case of the use of force against the Houthi rebels in the Red Sea, the USA and the UK refer to their inherent right to self-defense,[20] while they have notified the UN Security Council about this fact (that is, at least fulfilled the required notification obligation). If we work on assumption of the existence of an armed attack (mainly because of the repeated attacks by the Houthis, as well as their severity - as one incident caused the sinking of a ship and environmental damage), we could accept the use of force in self-defense as justified. But the question is whether these were attacks on military and/or state ships of these states, because an attack on a commercial ship rather constitutes of criminal crimes (according domestic penal codes). And of course, as in the previous case - the Houthis are considered a rebel group operating on the territory of Yemen, and therefore their actions cannot be attributed to the state of Yemen either. And at the same time, the USA and the UK argue for the use of force in self-defense precisely by attacks on „vessels as such“[21] (not even on ships under their flag). The UN Security Council responded to the situation in the Red Sea by adopting resolution no. 2722 from 2024. This resolution is not an authorization for the use of force (also because it was not adopted on the basis of Chapter VII of the UN Charter), but it contains the note "right of Member states to defend their vessels from attacks, in accordance with international law."[22]

At the same time, in this context, it is at least interesting to mention the operation of the EU as an supranational (yet not defensive) bloc of states, within which the Union respects the basic functions of the state as the exclusive powers of its members. "Above all, national security remains the sole responsibility of each member state."[23] In any case, freedom of navigation has long been a priority of the EU, and for this purpose it created the mechanism of "coordinated maritime presence" (CMP). In response to the aforementioned UNSC resolution, to the situation in the Red Sea, and to the fact that some European ships (e.g. the Danish Maersk) were attacked - the EU decided to create a naval mission Aspides. It should be emphasized that its mandate is strictly defensive, as its goal is only defends civilian vessels and does not take part in any military strikes (that is, it does not use force in self-defense).

In summary, one of the key limits of the application of the right to self-defense (outside of the criteria established to determine the legality of the use of this right) is the fact that if there is use of the ius ad bellum lens - it is not possible to defend against non-state actors. Another limit is, of course, the very distinction between legal criteria based in the norms of contractual and customary law. If argumentation is based on Article 51 of the UN Charter - proof of the existence of an armed attack is a decisive fact.

Conclusion

In international law, if a state wants to exercise a legal right to self-defense (and not violate the imperative principle of the prohibition of the threat and use of force in international relations), it must be able to prove that it has become a "victim." The burden of proof in such a case rests with the state trying to justify the use of force in self-defense. In current international relations, however, only austere statements and justifications for actions with reference to the use of force in self-defense can be observed. It is possible to state that precise standards for the use of self-defense are absent in international law, which subsequently leads to misinterpretation and "one-way" interpretation of legally established criteria, but from the existing valid norms we can derive the criteria for the legal use of force in self-defense. The

[20] See Letter dated 12 January 2024 from the Permanent Representative of the United Kingdom of Great Britain and Northern Ireland to the United Nations addressed to the President of the Security Council, S/2024/55 and/or Letter dated 12 January 2024 from the Permanent Representative of the United States of America to the United Nations addressed to the President of the Security Council, S/2024/56

[21] Ibid.

[22] Ibid.

[23] BOCKOVÁ, L. (2022): Právo Európskej únie, p. 44.

contractual regulation is unambiguous, and in the case of a customary one, it is possible to include an imminent threat/danger of aggression among the conditions, while the reaction to this fact must show signs of necessity and proportionality. At the same time, the victim of an imminent threat should at least indirectly demonstrate that the threat is serious and imminent.

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TO SELECTED ASPECTS OF MIGRATION IN CENTRAL AMERICA

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Abstract: Migration from Central America has a long history and is significantly influenced by socioeconomic conditions in the sending countries. The aim of the paper is to characterize current trends of irregular migration from Central America. By analyzing the migration flow, we examine the structure of nationalities, define transit countries, and destinations of Central American migrants and the greatest contribution of migration in the form of remittances. Since 2015, Central American countries have been transit countries for migrants and refugees from Venezuela, then for Caribbean nations, but also Africans and Asians. The most important transit hubs include Panama, Honduras and Mexico. The destination for most Central American migrants and Mexicans is the United States. Remittances are an important source of external financing for the observed countries. Honduras, El Salvador, Nicaragua, and Guatemala are dependent on remittances, accounting for more than 19% of their GDP.
Keywords: irregular migration, Central America, transit countries, Northern Triangle, remittances
JEL: F22, F24

Introduction

Migration from Central America has a long history. International migration is defined as the movement of a person across an international border. It represents a social phenomenon with various economic, social and political consequences. On the other hand, migration is caused by social, economic, environmental, security and political reasons or a combination of them. Each type of migration has consequences for both countries, the home/sending country and the destination. The biggest problem for society is irregular migration, which is defined as unauthorized movement of persons (*"who moves or has moved across an international border and is not authorized to enter or to stay in a State pursuant to the law of that State and to international agreements to which that State is a party"*).[1] The International Organisation for Migration (IOM) estimates that there *"were around 281 million international migrants in the world in 2020, which equates to 3.6 per cent of the global population."*[2] Currently, it is estimated that the status of irregular migrants has 15-20% of them.[3]

Central America is a region that leaves thousands of inhabitants every year. It includes the territory south of the southern Mexican border to the southern Panamanian border with Colombia. It includes the following countries: Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama, with a variation with/without Belize, which belongs more to the Caribbean region. In this paper, for purpose of the further investigation, we work with the countries of Central America according to the above definition, variation with Belize. At the same time, we also focus on the direction of migration and the destination of migrants

[1] EUROPEAN COMMISSION (s. n.): Glossary: Irregular migrant.
[2] IOM (2021): World Migration Report.
[3] SPENCER, S. – TRIANDAFYLLIDOU, A. (2022): Irregular Migration, p. 191.

from Central America, the subject of investigation is Mexico as both a transit country and a country of origin of migration.

The contribution aims to characterize current trends of irregular migration from Central America. By analyzing the migration flow, we examine the structure of nationalities, define transit countries, and destinations of Central American migrants and the greatest contribution of migration in the form of remittances. We focus primarily on the question of the role of Central American countries in illegal migration.

1 Migration trends

Despite the enormous scale of irregular migration in Central America, regular migration still prevails. According to IOM *"the majority of entries into countries occur through official channels and using regular pathways."*[4] But thousands of people still use informal means and unofficial passages in conditions of high risk and exposure every year.

In addition to the domestic population migrating from Central American states, Central America is also an important transit region, which means that most incoming migrants only pass through Central America and do not plan to settle there. The final destination is the US where migrants come with a vision of a better life and where communities of *Latinos* have already been created, which means easier adaptation for new migrants. Only *"15% of Central American migrants in other Latin American countries, with Mexico being a common destination."*[5] Outside Latin America, Spain and Canada have notable presences of migrants from Central America. In the case of Nicaraguans, Costa Rica prevails as the top destination. According to IOM data, approximately 521,000 migrants live in Costa Rica (over 10% of the total population) and around 313,000 in Panama (7.3% of the total population), Panama and Costa Rica as the richest countries in the subregion are attractive destinations for migrants (regular even irregular ones) from other Latin American countries. By comparison, migrants in Mexico and the remaining Central American countries make up less than 1% of the total population.[6] They are therefore clearly primarily transit countries and not final destinations. In addition, net migration is recorded only in Costa Rica, Panama, the 2 richest Central American countries, and Belize[7] (thanks to specific legislation).

Among the push factors for migration from Central America, we include the socioeconomic situation in the home countries, a high level of poverty and inequality, environmental vulnerability, a high level of violence and crime, and the presence of gangs and illegal groups. In addition, COVID-19 accelerated the migration trends of the region. Despite the reduced flow of migrants (regular and irregular) in 2020 due to closed borders, the number of migrants increased almost 5-fold in the following year.

An important transit area for irregular entries is the area called the Northern Triangle. The Northern Triangle is the territory of three Central American states: Guatemala, El Salvador and Honduras (Fig.1).

[4] IOM (2024): Migration Trends in the Americas, p. 5.
[5] BABICH, E. – BATALOVA, J. (2021): Central American Immigrants in the United States.
[6] IOM (2021): World Migration Report.
[7] WORLD BANK (2024): Net migration.

Figure 1: The Northern Triangle of Central America

Source: CONGRESSIONAL RESEARCH SERVICE. (2023): Central America Migration: Root Causes and U.S. Policy.

Nicaragua, Panama, and partly Costa Rica belong to other transit countries. Irregular migrants from South America cross the borders of Panama and continue the land route through other Central American countries. Since 2015, it is mainly Venezuelans[8] (with refugee status) who are leaving their country due to the political and economic crisis and heading through Colombia to Panama and beyond. It is assumed that their number exceeded 4 million in the world, with almost 40,000 of whom are living in Mexico, more than 94,000 in Panama, and almost 26,000 in Costa Rica.[9] Caribbeans currently use routes through Honduras and Panama (mainly migrants from Haiti), but also through Nicaragua (mainly Cubans thanks to visa-free relations between Cuba and Nicaragua). The main Latin American nationalities in transit through Panama are Venezuelans, Ecuadorians, and Haitians, through Honduras – Venezuelans, Haitians and Cubans, and through Mexico - Venezuelans, Hondurans, and Guatemalans.

Panama and Honduras are also important transit countries for migrants coming from outside Latin America, for example from Africa and Asia. In the case of Africans, there is a greater flow through Honduras than through Panama. The flow of African people in Panama is mainly composed of the following 3 nationalities: people from Cameroon, Somalia and Angola, in Honduras the flow is dominated by people from Guinea, Senegal and Mauritania. On the other hand, more Asians pass through Panama than through Honduras. „*The 3 main nationalities of irregular entry into Panama from Asia are Chinese, Afghan and Indian, while in Honduras they are Chinese, Uzbek and Indian.*"[10] The busiest border in Panama is the province of Darién, which borders Colombia. Up to 63% of migrants and refugees who crossed the border of Darién province in 2023 are of Venezuelan origin.[11]

[8] IDB-OECD (2021): Migration Flows in Latin America and the Caribbean, pp. 7, 16.
[9] IOM (2019): Migration Trends in Central America, North America and the Caribbean, p. 4.
[10] IOM (2024): Migration Trends in the Americas, p. 9.
[11] IOM (2024): Migration Trends in the Americas, p. 10.

Figure 2: Migration Routes

Source: IOM. (2024): Migration Trends in the Americas, p. 5.

2 United States as the destination country

The main destination for migrants from Central America (native or in transit) is the United States (U.S.). More than 447,000 foreign nationals (213,000 Guatemalans; 181,000 Hondurans; and 53,000 Salvadorans) were detained in the U.S. from northern Central American countries, i.e. from the Northern Triangle.[12,13] Population from the Northern Triangle have risen compared with previous years but Mexico still formed the single most common origin country of estimated migrant populations (appr. 600,000).[14] It is estimated that in 2023 Mexicans made up 30%, Guatemalans 11% and Hondurans 9% of all migrants who managed to cross the US border.[15]

According to the latest available data, almost 4 million Central American immigrants live in the U.S. The Central American-born population in the United States has grown more than tenfold since 1980 and by 25 per cent since 2010.[16] Specifically, most of them come from El Salvador and Guatemala (more than a million), followed by migrants from Honduras, Nicaragua, Panama, Costa Rica, and Belize. Considering the size of the Mexican population,

[12] CONGRESSIONAL RESEARCH SERVICE. (2023): Central America Migration: Root Causes and U.S. Policy.
[13] No available data for Nicaraguans and Belizeans.
[14] PROJECT HOPE (2023): Migrants needs Assessment: Mexico, pp. 2-3.
[15] IOM (2024): Migration Trends in the Americas, p. 41.
[16] BABICH, E. – BATALOVA, J. (2021): Central American Immigrants in the United States.

immigrants from Mexico are the most numerous group (more than 10 million).[17] Of course, the descendants of migrants make up the several million group of *Latinos* in the country, while Mexicans themselves make up about 11% of the total US population,[18] at the same time, the US has the second largest community of Mexicans in the world (after Mexico).

Table 1: Central American Immigrants in the U.S., by Country of Origin, 2021

Country	*Number of Immigrants*	*Share (%)*
TOTAL	3,820,000	100
El Salvador	1,418,000	37.1
Guatemala	1,107,000	29.0
Honduras	768,000	20.1
Nicaragua	257,000	6.7
Panama	113,000	3.0
Costa Rica	95,000	2.5
Belize	52,000	1.4
Other Central America	11,000	0.3

Source: BABICH, E. – BATALOVA, J. (2021): Central American Immigrants in the United States.

The second largest Latino group in the United States after Mexicans is Salvadorans (more than 1.4 million), representing approximately one-fifth of the Salvadoran population. El Salvador is the smallest country in Central America by area but at the same time the most densely populated. There are several factors behind the significant immigration of Salvadorans: a stagnant economy, government failures, natural disasters, a high level of corruption and, above all, violence since the 70s as a result of the bloody civil war and its consequences. In the 90s of the 20th century, even after the signing of the peace, the situation did not improve, even today we are talking about the persistence of a high level of violence in society (weapons possession, solving conflicts through violence, the existence of gangs). In summary, the resulting psychosocial trauma is referred to as the militarization of the mind.[19]

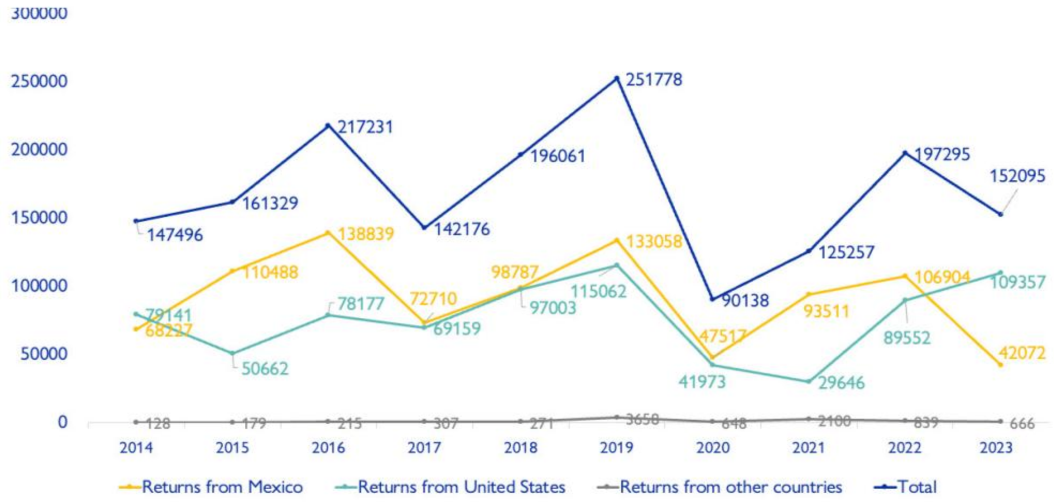
The Central American immigrant population has spread widely across the United States, but the highest concentrations are in the greater Los Angeles, New York, Washington, DC, Houston, and Miami areas.[20]

When analyzing current trends in migration from Central America, it is important to mention the attitude of the destination country – the U.S. The Trump administration (2015 – 2021) announced and ordered a tightening of migration policy, including for *Latinos*. After the accession of J. Biden to the presidency, a new strategy was developed towards Mexico and the Northern Triangle, both short-term and long-term. They are the revived projects, foreign aid and engagements in these countries that were cancelled by D. Trump in March 2019.[21] Despite the measures of the Biden administration, the number of returnees from the North Central American countries (prevails involuntary - expatriation) did not decrease, on the contrary. An increase in returns from the United States (2021 – 2023) has been recorded since J. Biden took office as president of the United States. Similarly, after D. Trump took office in 2017, the number of returns increased year-on-year due to measures tightening border controls until 2020, when there was a significant decrease in migration due to Covid 19. This is also influenced by the situation in Mexico, the ability and willingness to control the Mexican

[17] U.S. CENSUS BUREAU. (2021): Foreign born data tables.
[18] *Ibid*.
[19] MENJÍVAR, C. – CERVANTES, A. G. (2018): El Salvador: Civil War, Natural Disasters, and Gang Violence Drive Migration.
[20] BABICH, E. – BATALOVA, J. (2021): Central American Immigrants in the United States.
[21] CONGRESSIONAL RESEARCH SERVICE. (2023): Central America Migration: Root Causes and U.S. Policy.

borders. Currently, the number of returns to the northern countries of Central America from Mexico is significantly decreasing (Figure 3). The trend shows that the most expelled irregular migrants are men (more than 60 – 82% of returnees in the last 5 years).[22]

Figure 3: Returns from Mexico, the United States and other countries, 2014 – 2023



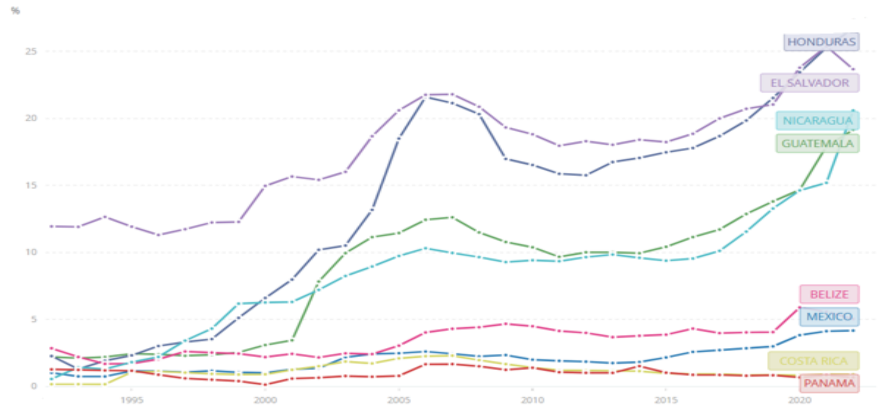
Source: IOM. (2024): Migration Trends in the Americas, p. 42.

3 Remittances in Central America and Mexico

Remittances represent an important element of external financing of economies. The third largest recipient of remittances in the world is Mexico. The volume of remittances in Mexico has increased almost tenfold since 1995, and according to the latest available data, in 2022 the volume of remittances reached 61.1 billion USD,[23] equivalent to 4.2% of GDP.[24] Since 2013, we have observed a constant increase in remittances received. Major recipients of remittances are most of the Central American countries. For Honduras, El Salvador, Nicaragua and Guatemala, the volume of remittances represents more than 19% of their GDP, so we label them as dependent on remittance income. It is followed by Belize with 5%, Mexico with 4% and in the case of Panama and Costa Rica, they represent less than 1% of GDP[25] (Figure 4) considering that it is a transit country.

[22] IOM (2019): Migration Trends in Central America, North America and the Caribbean, p. 2.; IOM. (2024): Migration Trends in the Americas, p. 42.
[23] WORLD BANK (2024): Personal remittances, received (current US$).
[24] WORLD BANK (2024): Personal remittances, received (% of GDP).
[25] *Ibid*.

Figure 4: Received remittances (% of GDP)



Source: WORLD BANK. (2024): Personal remittances, received (% of GDP).

According to the value of remittances received, the largest recipient among Central American countries is Guatemala (18.20 billion USD), followed by Honduras (8.49 billion USD), El Salvador (7.69 billion USD), Nicaragua (3.23 billion USD), Panama (526 million USD), Costa Rica (620 million USD), and Belize (142 million USD).[26]

Conclusion

In this paper, the author deals with current trends of irregular migration in Central America. Migration is a response to unfavourable socioeconomic, political, security and environmental conditions in Central American countries. Residents of Central America are prone to migrate primarily to the U.S. but also to European countries and richer Latin American countries, or geographically close (especially in the case of refugees and irregular migrants). Also, they are prone to migrate irregularly or due to an unfavourable situation to leave their home country (refugees).

Since 2015, Central American countries have been transit countries for migrants and refugees from Venezuela. Furthermore, for the Caribbean nations, but also Africans and Asians. The most important transit hubs include Panama, Honduras and Mexico. The destination for most Central American migrants, Mexicans and migrants in transit, is the U.S. Currently, Central Americans plus Mexicans form a significant community. Immigrants born in Mexico alone make up about 10% of the US population. Appr. 3.8 million immigrants born in Central America live in the USA, with the largest numbers coming from El Salvador.

Irregular migration from/through Central America and Mexico to the U.S. is a long-lasting but still relevant phenomenon. Moreover, after a significant decrease in immigration to the U.S. during COVID-19, it started to increase again. Last but not least, it is necessary to mention that every year thousands of people trying to cross the US border irregularly die or go missing during the journey itself.

Remittances belong to the consequences of migration. For the subregion of Central America plus Mexico, they represent an important source of external financing. Even though Mexico is the third largest recipient of remittances in the world, they make up only 4.2% of GDP. In contrast, some Central American countries (Honduras, El Salvador, Nicaragua, and Guatemala) are dependent on the income of remittances (they make up about 19% of their GDP).

[26] WORLD BANK (2024): Personal remittances, received (current US$).

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12. WORLD BANK (2024): Personal remittances, received (current US$). In *World Bank*. [Cited 12. 5. 2024.] Available online: Personal remittances, received (current US$) - Mexico, Guatemala, Honduras, Belize, Nicaragua, El Salvador, Costa Rica, Panama | Data (worldbank.org)

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CHARACTERISTICS OF ALTERNATIVE AND MAINSTREAM MEDIA[1]

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Abstract: This article seeks to contribute to the lively discussion on the topic of alternative media. There seems to be no consensus on a definition, even though most scholars agree that the phenomenon is real and has real life importance. The goal of this article is to capture certain stylistic characteristics of alternative media in Slovakia by comparing a sample of their writing with comparable sample from the mainstream media. The article compares opinion pieces from Hlavné správy and Denník N to ascertain the frequency of occurrence of expressives, rhetorical devices and sarcasm. The data shows that the selected alternative media use expressives and sarcasm more often than the selected mainstream media, although the use of rhetorical devices is similar.
Key words: alternative media, mainstream media, writing style, Slovakia
JEL: L82

Introduction

There has been a lot of scholarly discussion on the character of alternative media. The term alternative media was originally used to designate small, local, usually left-leaning media outlets, such as radio or newspapers. However, since the media world became dominated by the internet, internet-based, usually right-wing media have become more commonly associated with the term. In Slovakia, examples of media that are commonly called alternative include "Hlavné správy", "Infovojny", "Zem a Vek". These media are usually designated as alternative by the mainstream, or "legacy" media but the term is also sometimes used by the "alternative" media themselves. There is, however a distinguishable difference in the meaning when used by respective type of media. The term is derogatory when used in the mainstream, designating an outlet that presents warped image of world using disinformation (or misinformation). On the other hand, when used in the so-called "alternative scene", it carries a connotation of fight against hegemony of the mainstream media.

There is still no consensus on which characteristics of alternative media are the most relevant and therefore useful for a definition of the phenomenon. This paper seeks to deduce some characteristics of media that are commonly called alternative in terms of style by comparing them media that are generally considered mainstream. The first part of the paper presents a discussion on some aspects of the concept of alternative media as it appears in scholarly literature, with the focus on definition of alternative media. The second part of the paper presents results of a content analysis of selected mainstream and alternative media with the aim of comparing them in terms of style in the domain of opinion journalism.

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1 Alternative Media: Problematic Definition

There seems to be a continuing confusion in scholarly discussion on alternative media in terms of what the definition of this type of media should be. In fact, the only consistently recurring theme in the literature on alternative media is that the concept lacks a proper definition.[2,3,4,5] Alternative media have at times been defined too broadly, as is the case of Downing´s definition, which defines alternative media as "sources that differ from established or dominant types of media in terms of their content, production, or distribution."[6] At other times, alternative media have been defined in a way that exclude particular media that are usually understood to be part of the concept, as is the case of Fuchs´s definition of alternative media as "a sphere that challenges the capitalist media industry…" and "…a way [sic] of organizing and producing media that aim at creating critical content that challenges domination."[7] Definitions that are too broad offer no insight and allow for no meaningful operationalization, while the narrow definitions do not seem to capture the essence of the phenomenon. Arguably, the most often cited defining feature of alternative media seems to be the fact that they are not *mainstream* or *legacy* media.[8]

I will not be seeking to solve this issue in this article, although the work presented here can be seem as part of the wider attempt to understand different types of media through empirical investigation in order to arrive at meaningful conceptualization of the phenomenon. The enterprise can be sketched out in the following way: First, we need to identify the differences between all media. Second, if the differences follow a certain logic (roughly consistent with the common-sense notion of alternative media) and can be clearly identified in separate clusters of media, we can use these characteristics as the basis for a definition. If no consistent differences emerge, we must conclude that the concept of alternative media is not useful for media analysis. Although inductive in logic, this approach can provide a basis for a more theoretical deductive research in the future. It seems to me that this is warranted given that attempting to create a theory of alternative media without having a consensus on what the alternative media really are is unproductive.

In my view, there are three meaningful ways to approach the issue of defining alternative media. First, we can look at the content (foreign/domestic, economic/political) of all media and see whether there are significant differences between the media we generally consider mainstream and media that we generally consider alternative (common sense). If so, we have a meaningful characteristic that can be used for a technical definition of alternative media. In this domain, we could be looking at ideological orientation of the presented news, or the presence of counter-hegemonic discourse. Second, we can look at the organizational characteristics of the media. In this domain, we would be looking at things such as ownership structure of media, number of staff, legal status, etc. The suggested features of alternative media in this area include de-professionalization, native reporting, and historically also collective organization and alternative distribution, but these features seem less prevalent even without serious study. Finally, we can try to compare different media in terms of style of journalism and see whether meaningful differences emerge in this domain. Here, we could be looking at use of language, but also alternative aesthetics and forms. These approaches can (and should) be combined. This article only focuses on the stylistic differences between two selected media. Whenever the term

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[2] FUCHS, CH. (2010): Alternative Media as Critical Media.
[3] SANDOVAL, M. – FUCHS, CH. (2010): Towards a Critical theory of Alternative Media.
[4] BAILEY, O., G. – CAMMAERST, B. – CARPENTIER, N. (2008): *Understanding Alternative Media*.
[5] COYER, K. – DOWMUNT, T. - FOUNTAIN, A. eds. (2007): *The Alternative Media Handbook*.
[6] DOWNING, John (2001): Radical Media.
[7] FUCHS, CH. (2010): Alternative Media as Critical Media. European Journal of Social Theory, p. 199.
[8] HARCUP, T. (2005). "I'm Doing this to Change the World": Journalism in Alternative and Mainstream Media.

“alternative media” is used in this paper, it is used informally in the common sense usage of the word, not reflecting any particular technical approach or definition presented previously.

This article deals specifically with Slovak media. Scholarly literature on Slovak alternative media is limited, but growing since the alternative media became a political issue of increased importance. The analysis presented in this paper is closest to the work of Patráš,[9] who used a more linguistically refined approach to study the use of colloquialisms in alternative media. He did not make a direct comparison with mainstream media though. Other literature on Slovak alternative media include Štefančík and Hvasta´s work,[10] and more focused works, such as Solik and Holaň´s[11] analysis of “pro-Russian” alternative webpages, and Uličný´s[12] analysis of hoaxes in alternative media during the pandemic. Some of these works only make use of the concept of alternative media implicitly.

2 Methodology

The research presented in this paper has a character of a case study of alternative media in Slovakia. The method used can be classified under content analysis. The text used for analysis was sampled from two sources: 1) Hlavné správy as representative of alternative media (alternative in the common-sense use of the word); 2) Denník N as representative of mainstream media. The sample of the text was comparable in terms of type (opinion piece) and in terms of length (10012 words for Hlavné správy and 9931 words for Denník N). The number of opinion pieces analysed was nine from nine different authors and the number of opinion pieces analysed for Hlavné správy was twelve from twelve different authors. This means that opinion pieces from Hlavné správy are generally shorter. The decision was taken to prioritize number of words to number of opinion pieces to standardize the count, since the number of words is a better representative of length of text. In any case, the number of opinion pieces was still similar enough not to disqualify the comparison.

Moreover, it was important for the period to be the comparable, so as to avoid the difference in context influencing the style of writing. It is conceivable that the style of writing in opinion pieces varies across topics. For example, after 9/11, it could be true that opinion pieces in the US were more expressive than in less tense historical moments. For this reason, the period was selected as similar as possible. The opinion pieces for Hlavné správy were sampled from 20th March 2024 – 26th March 2024. The opinion pieces for Denník N were sampled from 20th March 2024 – 23rd March 2024.

The main category that was analysed was style. The codes used were 1) expressives; 2) rhetorical devices; 3) sarcasm.

Expressives were defined as any word or phrase that expresses a certain attitude toward or information about the referent. The criteria for an expression to be coded as expressive were high, in the sense that only highly expressive words and phrases were coded. Examples of expressions coded for expressiveness include: “desperately”, “literally a massacre” Examples of expressions not coded for expressiveness: “favourable”. Although the base level for an expression to be counted as expressive was subjective, since the coding was done by the same person and there was no need for an objective reference point (the reference point is the other text we are comparing), we can assume that the frequency of codes for expressiveness represents the comparative degree of expressiveness of the two texts.

Rhetorical devices were limited to metaphors, and proverbial sayings. Examples include “meat grinder” and “political heavyweight” for metaphors and “better safe than sorry” for

[9] PATRÁŠ, V. (2019): Colloquiality and stylistics of online alternative news media.
[10] ŠTEFANČÍK, R. – HVASTA, M. (2019): *Jazyk pravicového extrémizmu*.
[11] SOLIK, M. – HOLAŇ, L. (2019): Instrumenty hybridní války: Prokremelské propagandistické „alternativní“ mediální weby na Slovensku.
[12] ULIČNÝ, P. (2022): Hoaxy v kontexte pandemickej krízy.

sayings. Most expressions coded as rhetorical devices were metaphors. Sarcasm was coded in the common sense of the word. Examples include "godforbid!" or "us, civilized Europeans". Obviously, the context is necessary for sarcasm to become apparent, but authors often helpfully put these expressions between parenthesis to indicate their intentions. The sampled text was coded for these codes and their frequency was evaluated in order to arrive at conclusions about any potential differences between the two selected types of media.

3 Results and discussion

The results of the content analysis are summarized in the following table:

Table 1: Code Frequency for the Sampled Text from the Two Selected Media

	Expressives	Rhetorical Devices	Sarcasm
Hlavné správy	96	56	34
Denník N	59	43	6

Source: own work

We can note that there is a significant difference in the frequency of expressives used in the selected alternative media (Hlavné správy). Although the difference is relatively significant, we have to be careful with drawing conclusions since the sample of the text was relatively small, and there was a piece within the sample for Hlavné správy, which contained a disproportionate number of expressives and therefore skewed the numbers slightly. As far as rhetorical devices are concerned, we cannot draw any significant conclusions, with the difference being relatively small, although once again, the alternative media used these expressions more often. The most significant difference that we can observe between the two samples is in terms of sarcasm, which is much more frequently used in the selected alternative media.

These results presents us with us with meaningful insight despite the limited scope of the analysis. The differences that were observed are not so significant as to provide definitive conclusion about stylistic differences between the two studied media, but if we assume that the selected media are to a certain degree representative of the mainstream and alternative media, the results suggest that a further analysis is warranted into the use of expressive language and sarcasm. Should we observe these differences across two clusters of media (that we could provisionally designate as mainstream and alternative), we could conclude that these characteristics should be part of their definition. If these differences are more "spread out" with no obvious pattern, we would have to conclude that style is not a characteristic that would be useful for defining alternative media. Although opinion pieces are ideal texts within the journalistic genre to analyse in this way, the analysis can be expanded to other types of text. It might be interesting to analyse stylistic differences between media sources in general news. This can certainly be done for expressives, although it can be expected that even so-called alternative media do not generally use sarcasm when providing news.[13]

Conclusion

This paper sought to contribute to the lively discussion on the characteristics of alternative media that has recently come up in response to their rising popularity and influence. The paper briefly analyses the state of the field of alternative media analysis in the first part, and reports results of a content analysis of two samples of opinion pieces taken respectively from a selected mainstream newspaper and a selected alternative internet newspaper in the

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[13] I should note here, that if we were to analyse the type of content that alternative media provide, we would probably find out that much of what some of the alternative media present as news are in fact opinion pieces, or reactions, so the distinction becomes a bit complicated in some cases.

second part. In the first part, I suggest ways in which empirical analysis of all media can contribute to the discussion on definition of key concepts, through focusing on comparing style, content and organizing structures. The conclusion that the analysis arrives at in the second part is that when it comes to opinion pieces, the selected alternative media use expressive language more often than mainstream media and use sarcasm much more often, to the point of it being an observable characteristic of the style of writing. Since the analysis was limited in scope to two media, further analysis needs to be done in order to generalize these conclusions for the whole spectrum of alternative media. This paper represents a starting point for a more thorough comparison of different media that could potentially lead to a meaningful definition of the phenomenon of alternative media, which is currently lacking.

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9. SOLIK, M. – HOLAŇ, L. (2019): Instrumenty hybridní války: Prokremelské propagandistické „alternativní" mediální weby na Slovensku. In *Politologická revue (Czech Political Science Review)*, (2), 27-64.
10. ŠTEFANČÍK, R. – HVASTA, M. (2019): *Jazyk pravicového extrémizmu*. EKONÓM.
11. ULIČNÝ, P. (2022): Hoaxy v kontexte pandemickej krízy. *Marketingová komunikácia Médiá Reklama*, 120.

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RISK-ADJUSTED PERFORMANCE OF INVESTMENT PORTFOLIOS IN HIGH-INCOME COUNTRIES AND EMERGING MARKETS

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Abstract: This paper examines the risk-adjusted performance and Value at Risk (VaR) of four investment portfolios: two in emerging markets and two in high-income countries. Using the Sharpe Ratio, Jensen's Alpha, Sortino Ratio, and three VaR methods (Variance-Covariance, Historical Simulation, and Monte Carlo Simulation), the study evaluates their risk-return characteristics. Results show that High-Income Country Portfolio 1 has the best risk-adjusted performance and the lowest potential for large losses, followed by Emerging Markets Portfolio 2. The findings underscore the importance of using multiple risk-adjusted performance measures and VaR methods in portfolio evaluation, tailored to individual risk tolerance, investment horizon, and objectives. This paper enhances understanding of risk-adjusted performance and offers insights for investors and portfolio managers.

Key words: investment, risk-adjusted performance, portfolio management, emerging markets, international investment

JEL Classification: G11, G15, G32

Introduction

Investment portfolio management is crucial, especially for international investments. As financial markets globalize, investors aim to balance risk and return across regions. High-income countries and emerging markets each offer unique opportunities and challenges. High-income countries, with stable political environments and mature markets, offer predictable returns, while emerging markets, despite higher return potential from rapid growth, pose higher volatility and risk due to political instability and less mature markets.

This research evaluates the risk-adjusted performance of investment portfolios in high-income countries and emerging markets. Using indicators like the Sharpe Ratio, Jensen's Alpha, and the Sortino Ratio, the study assesses investment strategies' efficiency and effectiveness. It also applies Value at Risk (VaR) methodologies—variance-covariance, historical simulation, and Monte Carlo simulation—to understand potential downside risks.

Four distinct portfolios, two from high-income countries and two from emerging markets, are constructed and evaluated. This comparative analysis considers return potential and associated risks, offering insights into investment strategies, portfolio compositions, and risk management practices used by liability-driven investment (LDI) institutions.

The paper is structured as follows: Section 2 reviews risk-adjusted investment performance indicators; Section 3 outlines research methods, data collection, and portfolio composition; Section 4 presents results; and Section 5 concludes the study.

1 Literature review

Investment strategies aim to achieve specific financial objectives by balancing returns against associated risks. Evaluating these strategies requires a thorough understanding of risk-adjusted performance metrics and risk management techniques.

The concept of risk-adjusted performance was pioneered by Sharpe[1] with the introduction of the Sharpe ratio, which measures excess return per unit of risk. This seminal work laid the foundation for subsequent research into risk-adjusted performance measures. Jensen[2] further contributed to this field by developing Jensen's Alpha, a measure that evaluates a portfolio's excess return relative to its systematic risk.

These early measures, while pioneering, were based on assumptions of normally distributed returns and symmetric risk. Recognizing the limitations of these assumptions, particularly in the context of complex investment strategies and non-normal return distributions, researchers developed more sophisticated measures. Sortino and Price[3] introduced the Sortino ratio, which focuses on downside risk, addressing the asymmetry often observed in investment returns.

The application of these risk-adjusted performance measures across different market contexts has been a subject of extensive research. Eling and Schuhmacher[4] conducted a comprehensive comparison of various performance measures across different types of funds. Their findings suggested that while these measures often lead to similar rankings of investment strategies, each measure can provide unique insights depending on the specific characteristics of the investment and market environment.

In the context of emerging markets, which often exhibit higher volatility and unique risk characteristics, the application of risk-adjusted performance measures has been particularly challenging. Bekaert and Harvey[5] highlighted the complexities of evaluating investment strategies in emerging markets, noting that traditional risk measures may not fully capture the unique risks associated with these markets, such as political instability and liquidity constraints.

The concept of Value at Risk (VaR) has become increasingly important in risk management and performance evaluation. Jorion[6] provided a comprehensive overview of VaR methodologies and their applications in financial risk management. However, the limitations of VaR, particularly during periods of market stress, have been highlighted by researchers such as Danielsson et al.,[7] who emphasized the need for more robust risk management techniques that can account for extreme events.

The comparison of investment strategies between emerging markets and developed economies has been a focus of several studies. Groot et al.[8] examined the performance of cross-sectional equity strategies in emerging markets compared to developed markets. Their research indicated that while many anomalies documented in developed markets also exist in emerging markets, often with greater magnitude, higher trading costs in emerging markets can significantly impact the profitability of these strategies. Zaremba and Czapkiewicz[9] further explored this theme by investigating the performance of factor pricing models across multiple emerging stock markets. Their results underscored the heterogeneity within emerging markets and the need for market-specific analysis when evaluating investment strategies.

[1] SHARPE, W. F. (1966): Mutual Fund Performance, p. 119.
[2] JENSEN, M. C. (1968): The performance of mutual funds in the period 1945-1964, p. 389.
[3] SORTINO, F. A. – PRICE, L. N. (1994): Performance measurement in a downside risk framework, p. 59.
[4] ELING, M. – SCHUHMACHER, F. (2007): Does the choice of performance measure influence the evaluation of hedge funds?, p. 2632.
[5] BEKAERT, G. – HARVEY, C. R. (2007): Emerging equity markets in a globalizing world.
[6] JORION, P. (2007): Value at Risk: The New Benchmark for Managing Financial Risk.
[7] DANIELSSON, J. et. al. (2016): Model risk of risk models, p. 79.
[8] GROOT, W. D. – HUIJ, J. – ZHOU, W. (2012) : Another look at trading costs and short-term reversal profits, p. 371.
[9] ZAREMBA, A. – CZAPKIEWICZ, A. (2017): Digesting anomalies in emerging European markets: A comparison of factor pricing models, p. 31.

The evolution of factor-based investing has also influenced the discourse on risk-adjusted performance. Fama and French[10] extended their three-factor model to a five-factor model, incorporating profitability and investment patterns. This work has been influential in shaping understanding of return drivers in developed markets, although its applicability to emerging markets remains a subject of ongoing research.

In the realm of alternative investments, which often exhibit non-normal return distributions, the application of traditional risk-adjusted performance measures has been particularly challenging. Amin and Kat[11] highlighted the limitations of conventional performance measures when applied to hedge funds and proposed alternative approaches that better capture the complex risk-return profiles of these investments.

The impact of market conditions on the effectiveness of risk-adjusted performance measures has also been a subject of research. Caporin and Lisi[12] examined the stability of performance rankings based on various risk-adjusted measures during different market phases. Their findings suggested that the reliability of these measures can vary significantly depending on market conditions, emphasizing the importance of considering multiple measures and market contexts when evaluating investment strategies.

Recent research has also focused on incorporating environmental, social, and governance (ESG) factors into risk-adjusted performance evaluation. Verheyden et al.[13] investigated the impact of ESG screening on portfolio performance, suggesting that ESG integration can potentially enhance risk-adjusted returns, particularly over longer investment horizons.

2 Methods

2.1 Portfolio composition and data collection

To obtain the necessary secondary data for the paper we used platform Bloomberg Terminal. Utilising this platform enabled to construct a robust dataset, ensuring the accuracy and validity of the secondary data used in the study. To initiate the research process, it was necessary to conduct consultations with representatives from three liability-driven investment (LDI) institutions (pension fund, insurance company) to gain insights into their investment strategies. This type of investor applies asset-liability matching (ALM) frameworks where to its liabilities (payment of pension, insurance claims) an asset with similar risk profile and duration is found. In addition, these investment strategies are also subject to regulatory requirements Solvency I and II for capital adequacy and risk management standards or Basel I, Basel II, and Basel III for capital requirements, risk assessment, and liquidity management). Following the consultations, we formed methodology for creating individual investment strategies and portfolios which are briefly provided in Table 1.

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[11] AMIN, G. S. – KAT, H. M. (2015): Hedge fund performance 1990–2000: Do the "money machines" really add value?, p. 251.
[12] CAPORIN, M. – LISI, F. (2011): Comparing and selecting performance measures using rank correlations. Economics: The Open-Access, p. 2011.
[13] VERHEYDEN, T. – ECCLES, R. – FEINER, A. (2016): ESG for all? The impact of ESG screening on return, risk, and diversification, p. 47.

Table 1: Overview of analysed investment strategies and portfolios

Investment Strategy	*Investment Portfolio*	*Allocated Investment*
Emerging Markets Investment Strategy 1	Emerging Markets Portfolio 1	GBP 3 667 630
Emerging Markets Investment Strategy 2	Emerging Markets Portfolio 2	USD 233 300 187
High-Income Country Investment Strategy 1	High-Income Country Portfolio 1	USD 2 426 902 011
High-Income Country Investment Strategy 2	High-Income Country Portfolio 2	GBP 3 667 630 350

Source: Own processing

2.2 Risk-adjusted investment performance indicators

We follow Sivák et al.[14] and apply risk-adjustment investment performance indicators Sharpe Ratio,[15] Jensen's Alpha,[16] Sortino[17] ratio.

The Sharpe Ratio, developed by William Sharpe,[18] measures the risk-adjusted return of an investment by comparing its excess return to its standard deviation. It is widely used to evaluate the performance of mutual funds and other investments.[19] However, the Sharpe Ratio has limitations, such as its sensitivity to the choice of risk-free rate and its assumption of normally distributed returns.[20]

Sharpe ratio $SR = \frac{R_i - R_f}{\sigma_i}$ (1)

where expected return (R_i) beyond the risk-free rate (R_f) is divided by the risk.

Jensen's Alpha, introduced by Michael Jensen,[21] measures the excess return of an investment relative to its expected return based on the Capital Asset Pricing Model (CAPM). It is used to evaluate the skill of portfolio managers in generating above-average returns.[22] However, the validity of Jensen's Alpha depends on the accuracy of the CAPM and the choice of benchmark.[23]

Jensen's Alpha $\alpha_i = R_i - R_f - \beta_i(R_m - R_f)$ (2)

Excess return in relation to the risk-free asset R_r and to the gain according to the risk incurred β_i in relation to the market portfolio R_m.

The Sortino Ratio, developed by Frank Sortino,[24] is a modification of the Sharpe Ratio that only considers downside risk (i.e., returns below a specified threshold). It provides a more

[14] SIVÁK, R. et. al. (2018): Riziko vo financiách a bankovníctve, p. 171-289.
[15] SHARPE, W. F. (1966): Mutual Fund Performance, p. 119.
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[22] GRINBLATT, M. – TITMAN, S. (1989): Portfolio performance evaluation: Old issues and new insights.
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[24] SORTINO, F. A. (1994): Performance measurement in a downside risk framework, p. 59.

accurate measure of risk-adjusted performance for investments with asymmetric return distributions.[25] The Sortino Ratio has gained popularity in evaluating hedge funds and other alternative investments.[26]

$$\theta = \frac{R_i - R_f}{\sqrt{\frac{1}{N}\sum_{i=1}^{N}\left[Min(0;R_i - R_f)\right]^2}} \tag{3}$$

Variance-covariance VaR

$$VaR = Z_{(1-\alpha)} * \sigma_i \tag{4}$$

The Variance-Covariance approach to VaR estimation assumes that asset returns follow a multivariate normal distribution.[27] It uses the historical variance-covariance matrix of asset returns to calculate the VaR at a given confidence level. While computationally efficient, this approach has limitations, such as its reliance on the normality assumption and its inability to capture

Historical simulation VaR

$$VaR_a(X) = \min\{z\text{I}Fx(z) \geq 1 - \alpha\} \tag{5}$$

Historical Simulation is a non-parametric approach to VaR estimation that does not rely on any distributional assumptions.[28] It calculates VaR by simulating portfolio returns using historical asset returns. Historical Simulation is more flexible than the Variance-Covariance approach but may not capture extreme events that are not present in the historical data.[29]

Monte Carlo simulation VaR

Monte Carlo simulations are a class of computational algorithms that rely on repeated random sampling to obtain numerical results. The core idea is to use randomness to solve problems that might be deterministic in principle and integration is used to estimate the value of integrals, especially for high-dimensional integrals. Given a function f(x) over an interval [a, b], the integral can be approximated by:

*∫[a, b] f(x) dx ≈ (b - a) * (1/N) * Σf(x_i) for i=1 to N,* (3)

where x_i are uniformly distributed random samples over [a, b], and N is the total number of samples. However, Monte Carlo Simulation is computationally intensive and relies on the accuracy of the assumed probability distributions.[30] Each investment performance indicator possesses unique strengths and limitations. The selection of an appropriate indicator hinges on the specific characteristics of the investment and the investor's preferences. Utilizing multiple indicators can often provide a more comprehensive understanding of investment performance and risk.

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[29] BARONE-ADESI, G. et al. (1999): VaR without correlations for portfolios of derivative securities, p. 583.
[30] PRITSKER, M. (1997): Evaluating value at risk methodologies: Accuracy versus computational time, p. 201.

2.3 Emerging markets investment strategy 1 composition methodology

The investment strategy for emerging markets invests in USD-denominated Emerging Market Debt securities to generate returns exceeding the benchmark (Bloomberg Barclays USD EM Global Ctr Cap 7% and Bloomberg Barclays EM USD Agg 1-%, equally weighted). The portfolio invests in debt securities issued by sovereign entities and corporations with primary risk exposure to emerging markets, including USD-denominated foreign sovereign debt and debt issued by government-owned corporations. Permitted investments must have a credit rating of B- or better based on S&P, Moody's, and Fitch. The strategy emphasizes risk management through duration bandwidth limits, concentration limits on countries and issuers, and realized loss limitations.

2.4 Emerging markets investment strategy 2 composition methodology

This investment strategy is for managing a portfolio of USD-denominated Emerging Market Debt securities. The primary objective is to generate total returns exceeding benchmark. The portfolio is structured to invest in USD-denominated debt issued by sovereigns or corporations with primary risk exposure to emerging market countries. The benchmark comprises a 50% allocation to the Bloomberg Barclays USD EM Global Ctr Cap and a 50% allocation to the Bloomberg Barclays EM USD Agg 1-3Yr index. The portfolio is subject to credit quality restrictions, with 60-100% required to be investment grade, 0-40% allowed in BB-rated securities, and 0-9% in B-rated securities from S&P, Moody's, and Fitch. The use of derivatives, leverage, borrowing, securities lending, and short selling is prohibited. The portfolio cannot invest in municipal bonds, convertible bonds, capital securities, private placements, or securitized bonds.

2.5 High-Income country investment strategy 1 composition methodology

The strategy focuses on U.S. fixed income markets to create a diversified portfolio that generates stable income while managing risks. The goal is to outperform the S&P U.S. Aggregate Bond Index. Credit instruments must make up 80-100% of the portfolio, with up to 20% each in securitized and municipal bonds. The portfolio can hold up to 70% in BBB-rated securities and 10% in U.S. Treasuries and agency debt. Investments in convertible bonds, commercial paper, capital securities, and emerging market sovereign debt are prohibited. Non-U.S. exposure (excluding Canada) is limited to 20%. The strategy maintains a duration of 4.5-7.5 years and prohibits derivatives, leverage, borrowing, securities lending, and short selling, reflecting a conservative risk profile.

2.6 High-Income country investment strategy 2 composition methodology

The strategy aims to construct a low-risk, buy-and-hold portfolio of UK Government Bonds to match assets with Solvency II insurance liabilities. The portfolio uses derivatives for ALM and risk hedging. The investment universe consists of fixed-interest UK government bonds, approved securities, and cash, all denominated in GBP. Concentration limits are set for various instrument types and issuers based on their qualification and credit rating. Liquidity is managed by using proceeds from maturities and coupons to fund liabilities without reinvestment. Credit quality is strictly controlled, requiring a minimum AA rating for purchases, except for UK government bonds and T-bills.

3 Results

3.1 Emerging markets portfolio 1

The Emerging Markets Portfolio 1 has a total market value of GBP 3 667 630 and is primarily invested in rates products (99.55% of NAV) denominated in GBP fixed income securities with a significant exposure to Emerging Market Debt. The largest allocation is to

Rates Products (70.55%), which includes Non-Credit Sovereign (58.11%) and Non-Credit Foreign Agency (9.18%) securities from various emerging markets such as Indonesia, Colombia, Brazil, Mexico, and Panama. These securities have maturities ranging from 2021 to 2050 and are primarily sovereign bonds or issued by government-related entities. Credit Products make up 29.45% of the portfolio, with Corporates being the main component, split between High Yield (8.08%) and Investment Grade (21.37%) securities across various sectors. The "Other" sub-category (9.49%) consists of Emerging Market corporate debt securities from Brazil, Oman, South Africa, Guatemala, and Bahrain. The portfolio's benchmark, a 50/50 combination of the J.P. Morgan EMBI Global Diversified Index and the J.P. Morgan CEMBI Broad Diversified Index, confirms its focus on Emerging Market Debt.

The Sharpe Ratio of 0.4024 indicates that the investment returns, after adjusting for risk, are modest. The Sharpe Ratio is a measure of risk-adjusted return, where higher values indicate better risk-adjusted performance.

Jensen's Alpha of 0.2646213205707329 suggests that the investment or portfolio has outperformed its benchmark J.P. Morgan Emerging Market Bond Index (EMBI) Global Diversified Index. by 0.26 units, after adjusting for the level of systematic risk (as measured by beta). A positive Jensen's Alpha indicates that the investment has generated excess returns beyond what could be explained by its exposure to market risk. This metric is commonly used to evaluate the skill of portfolio managers in generating alpha.

The Sortino Ratio of 0.1551 is a measure similar to the Sharpe Ratio but focuses only on downside risk (negative deviations from the mean). A Sortino Ratio of 0.1551 suggests that the portfolio's return in relation to the downside risk is quite low.

In terms of VaR Variance - Covariance Method, normal distribution is assumed and the calculated value of GBP 42 728 indicates that there is a 95% level of confidence that the portfolio will not lose more than GBP 42 728 in 1 year under normal market conditions.

VaR Historical Simulation Method with the calculated value of GBP 19 251 is based on actual historical returns of the portfolio. It does not make any assumptions about the distribution of returns and instead uses historical data to simulate potential future losses and indicates that there is a 95% level of confidence that the portfolio will not lose more than GBP 19 251 in 1 year under normal market conditions.

The Monte Carlo Simulation VaR of GBP 30 175 uses computational algorithms to simulate a wide range of potential future returns based on random sampling from the historical distribution. The VaR from Monte Carlo Simulation sits between the Variance-Covariance and Historical Simulation values, reflecting a balanced view that incorporates both statistical assumptions and historical patterns. Therefore there is a 95% level of confidence that the portfolio will not lose more than GBP 30 175 in 1 year under normal market conditions.

3.2 Emerging markets portfolio 2

The Emerging Markets Portfolio 2, valued at $233 300 187, consists of Rates Products (72.37%), Credit Products (27.63%), and Cash Securities (6.81%). The Rates Products include Agency Plus, Non-Credit Foreign Agency, and Non-Credit Sovereign securities from various emerging market countries. The Credit Products comprise High Yield and Investment Grade Corporates across different sectors. Cash Securities are primarily short-term U.S. Treasury Bills. The portfolio is diversified across the Americas, Europe, the Middle East, Africa, and Asia, with exposures to countries such as the United States, Indonesia, Russia, Brazil, Mexico, and others. The benchmarks are the J.P. Morgan Emerging Markets Bond Index Global Diversified (50%) and the J.P. Morgan Corporate Emerging Markets Bond Index Broad Diversified (50%).

The Sharpe Ratio of 0.5326 indicates that the investment returns, after adjusting for risk, are modest. A ratio of 0.5326 suggests that for every unit of risk taken, the portfolio is generating a return of approximately 0.53 units.

Jensen's Alpha of 1,1121 suggests that the investment or portfolio has outperformed its benchmarks Two benchmarks which were assigned to portfolio, J.P. Morgan Emerging Markets Bond Index Global Diversified (EMBIGD) with 50% weight and J.P. Morgan Corporate Emerging Markets Bond Index Broad Diversified (CEMBI BD) with 50% weight by 1.11 units, after adjusting for the level of systematic risk (as measured by beta).

The Sortino Ratio of 0.2141 is a measure similar to the Sharpe Ratio but focuses only on downside risk (negative deviations from the mean). A Sortino Ratio of 0.2141 suggests that the portfolio's return in relation to the downside risk is relatively low.

Value at Risk Variance-Covariance Method assumes a normal distribution and the calculated value of USD 16 178 434 indicates that there is a 95% level of confidence that the portfolio will not lose more than USD 16 178 434 in 1 year under normal market conditions.

VaR Historical Simulation Method with the calculated value of USD 16 178 434 is based on actual historical returns of the portfolio. It does not make any assumptions about the distribution of returns and instead uses historical data to simulate potential future losses and indicates that there is a 95% level of confidence that the portfolio will not lose more than USD 16 178 434 in 1 year under normal market conditions.

Monte VaR Monte Carlo Simulation Method of USD 12 251 542 uses computational algorithms to simulate a wide range of potential future returns based on random sampling from the historical distribution. The VaR from Monte Carlo Simulation sits between the Variance-Covariance and Historical Simulation values, reflecting a balanced view that incorporates both statistical assumptions and historical patterns. Therefore there is a 95% level of confidence that the portfolio will not lose more than USD 12 251 542 in 1 year under normal market conditions.

3.3 High-Income country portfolio 1

The High-Income Country Portfolio 1, valued at $2,426,902,091, is primarily composed of fixed income securities, with Credit Products (68.42%) being the largest portion, followed by Securitized Products (24.32%) and Rates Products (7.26%). The portfolio is heavily weighted towards US Corporate and Securitized debt, with a core holding of US Government securities. The portfolio also has some notable non-US holdings from high-income countries such as Canada, United Kingdom, France, Australia, and Japan. Credit risk is diversified across sectors, and the portfolio has an intermediate average duration profile of 5-7 years. The assigned benchmark is the Bloomberg Barclays U.S. Aggregate Bond Index.

The Sharpe Ratio of 0.7456 suggests a relatively good risk-adjusted return. The Sharpe Ratio is a measure of the excess return (or risk premium) per unit of risk (standard deviation). A value of 0.7456 indicates that the portfolio earns approximately 0.75 units of return for each unit of risk. This ratio, while not extremely high, signifies that the investment is reasonably efficient in converting risk into return. It provides a basis for comparison with other investments; a higher Sharpe Ratio indicates a more attractive risk-adjusted performance.

Jensen's alpha of 1.3125 is quite high and indicates that the portfolio has significantly outperformed the market on a risk-adjusted basis therefore benchmark Bloomberg Barclays U.S. Aggregate Bond Index was outperformed by the portfolio. In other words, the portfolio manager's investment decisions have added substantial value, generating returns that exceed the benchmark's returns by 1.3125 percentage points.

A Sortino Ratio of 0.3290 which focuses on downside risk, suggests that the returns relative to the downside risk are more modest. This indicates that the portfolio may be more prone to negative returns, which could be a concern for risk-averse investors.

VaR Variance-Covariance Method assumes a normal distribution and the calculated value of USD 67 819 indicates that there is a 95% level of confidence that the portfolio will not lose more than USD 67 819 in 1 year under normal market conditions.

VaR Historical Simulation Method with the calculated value of USD 40 040 is based on actual historical returns of the portfolio. It does not make any assumptions about the distribution of returns and instead uses historical data to simulate potential future losses and indicates that there is a 95% level of confidence that the portfolio will not lose more than USD 40 040 in 1 year under normal market conditions.

The Monte Carlo Simulation VaR of USD 52 100 uses computational algorithms to simulate a wide range of potential future returns based on random sampling from the historical distribution. The VaR from Monte Carlo Simulation sits between the Variance-Covariance and Historical Simulation values, reflecting a balanced view that incorporates both statistical assumptions and historical patterns. Therefore there is a 95% level of confidence that the portfolio will not lose more than USD 52 100 in 1 year under normal market conditions.

3.4 High-Income country portfolio 2

The High-Income Country Portfolio 2, valued at GBP 3,667,630,350, primarily focuses on government and sovereign debt instruments, with 99.55% allocated to fixed income securities. Sovereign bonds, particularly UK gilts, dominate the portfolio at 79.01%. The portfolio also includes allocations to agency plus securities (15.59%), inflation-linked bonds and derivatives (2.58%), securitized products (0.60%), and cash securities (1.56%). The portfolio manages interest rate risk through swaps and swaptions, inflation risk through inflation-linked bonds and swaps, credit risk by focusing on high-quality sovereign and agency issuers, and foreign exchange risk through currency forwards and cross-currency swaps. The benchmark is the FTSE Actuaries UK Conventional Gilts All Stocks Index.

Calculated Sharpe ratio of 0.2252 is relatively low, suggesting that the portfolio's excess returns are not substantial compared to the risk taken. The low Sharpe Ratio here implies that the portfolio might not be efficiently compensating investors for the risk they are bearing.

Jensen's Alpha gauges the portfolio's performance against the Capital Asset Pricing Model (CAPM), measuring the excess return earned above the theoretical expected return. An alpha of 0.9815 is quite high, indicating that the portfolio has outperformed the market on a risk-adjusted basis therefore benchmark Bloomberg Barclays U.S. Aggregate Bond Index was outperformed. It suggests that the portfolio manager's investment decisions have added significant value.

The Sortino Ratio of 0.21899 is similar to the Sharpe Ratio but focuses only on downside risk by using the standard deviation of negative returns. A Sortino Ratio of 0.21899 suggests that the investment has not been highly effective in generating returns when considering only the downside risk. Like the Sharpe Ratio, a higher Sortino Ratio is preferable, as it indicates better risk-adjusted returns considering negative deviations.

VaR Variance-Covariance Method assumes a normal distribution and the calculated value of GBP 17 044 287 indicates that there is a 95% level of confidence that the portfolio will not lose more than GBP 17 044 287 in 1 year under normal market conditions.

Historical Simulation Method with the calculated value of GBP 12 547 895 is based on actual historical returns of the portfolio. It does not make any assumptions about the distribution of returns and instead uses historical data to simulate potential future losses and indicates that there is a 95% level of confidence that the portfolio will not lose more than GBP 12 547 895 in 1 year under normal market conditions.

Calculated Monte Carlo Simulation Method sits between the Variance-Covariance and Historical Simulation values, suggesting it accounts for both the statistical properties of returns and the historical patterns observed. Monte Carlo calculation of indicates that there is a 95%

level of confidence that the portfolio will not lose more than GBP 14 256 498 in 1 year under normal market conditions.

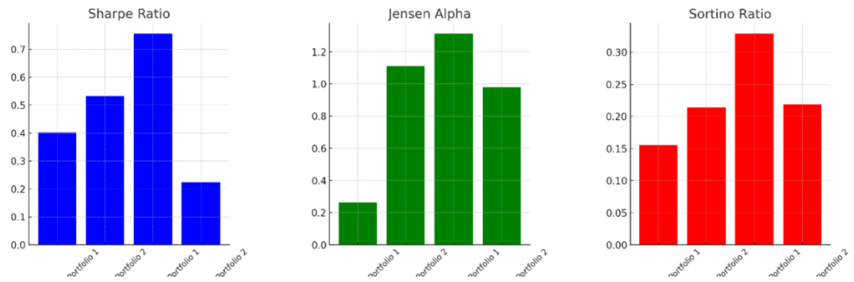
3.5 Portfolio comparison

Based on Figure 1, the High-Income Country Portfolio 1 has the highest Sharpe Ratio at 0.7456, indicating the best risk-adjusted returns. The Emerging Markets Portfolio 2 follows with a ratio of 0.5326, while the other two portfolios have lower Sharpe Ratios.

Following Figure 1 further, In terms of Jensen's Alpha, the High-Income Country Portfolios have significantly higher Jensen's Alpha values (1.3125 for Portfolio 1 and 0.9815 for Portfolio 2) compared to the Emerging Markets Portfolios (0.2646 for Portfolio 1 and 1.1121 for Portfolio 2). This suggests that the High-Income Country Portfolios have outperformed their benchmarks more than the Emerging Markets Portfolios.

When assessing Sortino Ratio, all portfolios have relatively low Sortino Ratios, with the High-Income Country Portfolio 1 having the highest at 0.3290. This indicates that all portfolios have relatively high downside risk relative to their returns.

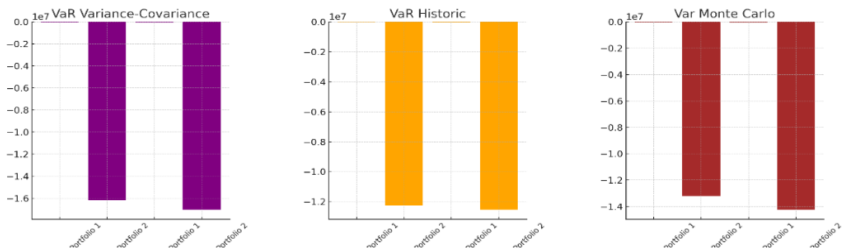
Figure 1: Comparison of sharpe ratio, jensen alpha and sortino ratio among portfolios



Source: Own processing of calculation results in Python

Following Figure 2, Value at Risk (VaR): The VaR calculations vary across methods, but the High-Income Country Portfolio 1 consistently has the lowest VaR values in dollar terms, suggesting it has the lowest potential for large losses. The Emerging Markets Portfolio 2 has the highest VaR values, indicating a higher potential for significant losses.

Figure 2: Comparison of value at risk frameworks among portfolios



Own processing of calculation results in Python

Overall, the High-Income Country Portfolio 1 demonstrates the strongest risk-adjusted performance and the lowest potential for large losses based on the VaR calculations. The Emerging Markets Portfolio 2 comes in second, with better risk-adjusted returns than the remaining two portfolios but higher potential losses.

It's important to note that while the High-Income Country Portfolios appear to outperform the Emerging Markets Portfolios, investing in emerging markets can offer diversification benefits and potentially higher returns over the long term, albeit with higher short-term volatility and risk. The choice between high-income and emerging market portfolios ultimately depends on an investor's risk tolerance, investment horizon, and overall investment objectives.

Conclusion

In conclusion, this paper has conducted a comprehensive analysis of the risk-adjusted performance and Value at Risk (VaR) of four investment portfolios, two focused on emerging markets and two on high-income countries. The study utilized a range of risk-adjusted performance measures, including the Sharpe Ratio, Jensen's Alpha, and Sortino Ratio, as well as three VaR calculation methods: Variance-Covariance, Historical Simulation, and Monte Carlo Simulation.

The results indicate that the High-Income Country Portfolio 1 exhibited the strongest risk-adjusted performance, with the highest Sharpe Ratio (0.7456), Jensen's Alpha (1.3125), and Sortino Ratio (0.3290). This portfolio also had the lowest potential for large losses based on the VaR calculations across all three methods. The Emerging Markets Portfolio 2 followed closely, with better risk-adjusted returns than the remaining two portfolios but higher potential losses as indicated by the VaR calculations. The analysis highlights the importance of considering multiple risk-adjusted performance measures and VaR calculation methods when evaluating investment portfolios. While the High-Income Country Portfolios demonstrated better risk-adjusted returns and lower potential for large losses in this study, it is crucial to recognize that investing in emerging markets can provide diversification benefits and potentially higher returns over the long term, despite higher short-term volatility and risk.

The findings of this paper have implications for investors and portfolio managers, emphasizing the need to carefully assess the risk-return trade-off when making investment decisions. The choice between high-income and emerging market portfolios should be based on an investor's individual risk tolerance, investment horizon, and overall investment objectives. Future research could expand on this study by incorporating a broader range of investment portfolios, exploring additional risk-adjusted performance measures, and examining the impact of various economic and market conditions on portfolio performance.

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THE AFRICAN COURT OF HUMAN AND PEOPLES' RIGHTS AND THE RIGHT TO LIFE AND TO DIGNITY

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Abstract: This paper analyzes recent developments in the African regional human rights system, focusing primarily on the role of the African Court of Human and Peoples' Rights (AfCHPR). In a landmark judgment, Rajabu v. Tanzania, the AfCHPR ruled that Tanzania's mandatory death penalty for certain crimes violates the right to life and dignity as stated in the Banjul Charter. The court has maintained this stance in subsequent rulings. This paper examines the evolution of the court's arguments through its recent case law and highlights how the AfCHPR's orders for Tanzania to amend its laws have remained unimplemented. The court's position now regards these violations as systemic in nature.[1]
Keywords: African Court of Human and Peoples' Rights, death penalty, human rights, right to life, right to dignity, Tanzania
JEL: K33, K38, H77

Introduction

The primary goal of this paper is to analyze the recent developments within the African regional human rights system, with a particular focus on the African Court of Human and Peoples' Rights (AfCHPR). This study aims to evaluate the court's evolving jurisprudence, especially in light of its landmark decision in Rajabu v. Tanzania, which declared Tanzania's mandatory death penalty as a violation of the right to life and dignity under the Banjul Charter. By examining the AfCHPR's case law, the research seeks to understand the broader implications of these rulings on the regional human rights framework and the systemic nature of human rights violations in Tanzania.

To achieve these objectives, the research employs a combination of doctrinal analysis and case law review. The doctrinal analysis involves a thorough examination of relevant legal texts, including the African Charter on Human and Peoples' Rights and its Protocols. The case law review focuses on a detailed analysis of the AfCHPR's decisions, tracing the evolution of its arguments and assessing the impact of its rulings on member states' legal practices. Additionally, the study reviews secondary literature to provide context and identify broader trends in regional human rights enforcement.

1 African Regional Human Rights System

The genesis of the African human rights framework dates back to the early 1960s. During the inaugural Congress of African Jurists in Lagos, Nigeria, in 1961, participants endorsed the "Law of Lagos"—a declaration advocating for the creation of an African treaty on human rights that would include both a court and a commission. Despite this early momentum, the proposal initially gained little traction among African governments. When the Organisation of African Unity (OAU) was established in 1963, its charter did not explicitly obligate member states to uphold human rights. The charter only stipulated that member states should consider the human rights principles outlined in the Universal Declaration of Human Rights in their

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international affairs. Despite the lack of a direct mandate, the OAU actively engaged with several human rights issues, including decolonization, racial discrimination, environmental protection, and refugee crises. However, it notably overlooked the severe human rights violations committed by some of its authoritarian member states. This oversight was largely attributed to the OAU's emphasis on socio-economic development, territorial integrity, and state sovereignty, coupled with a strong adherence to the principle of non-interference in domestic affairs. Renewed interest in a regional human rights mechanism emerged in 1967 during the first Conference of Francophone African Jurists in Dakar, Senegal. The Dakar Declaration that followed requested the International Commission of Jurists to explore, in collaboration with other African organizations, the feasibility of establishing such a mechanism. Concurrently, the United Nations supported efforts to promote human rights in Africa through seminars and conferences and established an ad hoc working group through its Human Rights Commission. Despite these efforts, attempts to secure African states' agreement to a regional human rights convention were initially unsuccessful. It was not until 1981 that the African Charter on Human and Peoples' Rights was adopted, and it officially came into effect in 1986. This marked the formal establishment of the African human rights system as it is recognized today.[2]

The African Charter on Human and Peoples' Rights,[3] adopted by the Organisation of African Unity (now the African Union) in 1981 and effective from 1986, stands as a pivotal regional human rights document. Its distinctiveness from other regional systems is evident in several respects. First, the Charter is notable for acknowledging both individual and collective, or "peoples'," rights. It encompasses rights such as self-determination, the autonomous management of wealth and natural resources, and the right to development. This focus on collective rights mirrors the African view of human rights, which positions the individual within the context of a wider community. Second, the Charter delineates responsibilities for both individuals and the state, extending beyond rights to prescribe duties. These include obligations to preserve the family unit, contribute to national development, and maintain positive African cultural values. This approach reflects an African philosophical tradition that considers rights and duties as mutually reinforcing. Third, the Charter established the African Commission on Human and Peoples' Rights as the principal body for monitoring and interpreting the Charter. The Commission is empowered to promote and protect the rights outlined in the Charter and to interpret its provisions. It accepts submissions from states, individuals, and NGOs regarding alleged violations of the Charter. Despite its innovations, the Charter and the Commission have encountered various challenges and criticisms concerning the Commission's autonomy and efficacy, as well as the initial absence of a binding enforcement mechanism. The establishment of the African Court on Human and Peoples' Rights aimed to remedy some of these shortcomings. Overall, the African, or Banjul, Charter signifies a significant regional endeavor to advance and safeguard human rights in Africa, capturing the unique historical, cultural, and political nuances of the continent. Its pioneering inclusion of peoples' rights and individual duties continues to influence the regional human rights dialogue.[4]

[2] VILJOEN, F. (2012): International human rights law in Africa. NMEHIELLE, V. O. O. (2001): The African human rights system : its laws, practice, and institutions. HEYNS, C. (2004): The African Regional Human Rights System: The African Charter.

[3] [Organization of African Unity]. (1981): African Charter on Human and Peoples' Rights.

[4] EVANS, M. D. – MURRAY, R. (2008): The African Charter on Human and Peoples' Rights : the system in practice, 1986-2000. SSENYONJO, M. (2012): The African regional human rights system : 30 years after the African Charter on Human and Peoples' Rights. UMOZURIKE, U. O. (2007): The African Charter on Human and Peoples' Rights: Suggestions for More Effectiveness.

2 African Court of Human and Peoples' Rights

Since the adoption of the African Charter on Human and Peoples' Rights in 1981, the African human rights system has experienced significant evolution. A key milestone in this progression was the establishment of the African Court on Human and Peoples' Rights (AfCHPR), inaugurated through a protocol[5] that came into effect on January 25, 2004. The AfCHPR was conceived to address the need for a regional judicial entity capable of interpreting and enforcing the African Charter's provisions. Before the Court's establishment, the African Commission on Human and Peoples' Rights, constituted under Article 45 of the Charter, served as the principal supervisory and interpretative body. However, the absence of a binding judicial framework curtailed the Commission's efficacy in enforcing human rights standards. The formation of the AfCHPR represented a significant advancement, offering a legal avenue for individuals and groups to seek remedies for human rights breaches.

Comprising judges elected by the African Union Assembly, the AfCHPR's bench consists of individuals noted for their moral integrity and impartiality, with recognized expertise in human and peoples' rights. This composition guarantees a bench rich in diversity and competence, equipped to effectively interpret and enforce the Charter and the Protocol. Judges serve six-year terms, with the possibility of one re-election.

The establishment of the AfCHPR has markedly bolstered human rights protection and promotion in Africa. By providing a judicial forum for redress, the Court has fostered the development of a substantial human rights jurisprudence within the region. Its rulings have covered significant issues such as the right to a fair trial, freedom of expression, and indigenous peoples' rights, setting crucial precedents and aiding in the harmonization of human rights standards across the continent.

Nonetheless, the AfCHPR encounters several challenges and constraints. A primary concern is the limited number of member states that have ratified the Protocol and accepted the Court's jurisdiction—only 32 of the 55 African Union members as of 2023. This restricted engagement hampers the Court's effectiveness and the universal application of human rights standards. Furthermore, the enforcement of the Court's decisions depends on state cooperation, as there is no stringent enforcement mechanism, which remains a significant hurdle for the AfCHPR.[6]

The African Court on Human and Peoples' Rights (AfCHPR) is currently experiencing a significant crisis as various African states begin to challenge its authority and jurisdiction. This resistance is indicative of a broader international trend where regional and subregional courts face pushback, particularly in contexts where they uphold principles of human rights, democracy, and the rule of law. A notable manifestation of this challenge is the withdrawal by several states of their declarations under Article 34(6) of the Court's Protocol. This article had permitted individuals and NGOs to directly initiate cases against states. Nations such as Rwanda, Tanzania, Benin, and Côte d'Ivoire have retracted their declarations, often in reaction to the Court's decisions concerning key issues of human rights, democracy, and the rule of law. These withdrawals are perceived as tactical moves by states to evade scrutiny and accountability for human rights abuses, effectively crippling the Court's ability to entertain direct petitions from individuals and NGOs. Currently, only six states retain their Article 34(6) declarations, which significantly undermines the Court's role as a pan-African human rights arbiter. This retreat signals a troubling inclination among states to employ political leverage to diminish the Court's independence and curtail its jurisdiction. This phenomenon is part of a

[5] [Organization of African Unity]. (1998): Protocol to the African Charter on Human And Peoples' Rights on the Establishment of an African Court on Human and Peoples' Rights.

[6] UMOZURIKE, U. O. (2007): The African Charter on Human and Peoples' Rights: Suggestions for More Effectiveness. EVANS, M. D. – MURRAY, R. (2008): The African Charter on Human and Peoples' Rights : the system in practice, 1986-2000.

larger global backlash against international courts, driven by various factors including states' reluctance to be held accountable, systemic challenges within international judicial mechanisms, and criticisms of judicial practices within these courts. Such dynamics highlight the ongoing tensions between national sovereignty and the international mandate to uphold human rights and democratic principles.[7]

3 Right to Life and to Dignity in the Case Law of the AfCHPR

In the case of *Rajabu v. Tanzania*[8] (hereafter "*Rajabu"*), the AfCHPR examined the imposition of the death penalty in Tanzania in the light of Article 4 of the African Charter on Human and Peoples' Rights, which asserts the inviolability of human beings and their entitlement to respect for life and personal integrity. Despite the absence of explicit mention of the death penalty in Article 4, the Court determined that the mandatory application of capital punishment in Tanzania was arbitrary and infringed upon the right to life.

Central to the Court's reasoning was the observation that the mandatory imposition of the death penalty deprived individuals of a personalized sentencing process. Additionally, the Court deemed hanging as a method of execution inherently degrading, thus further violating the right to life and human dignity.

Emphasizing the significance of the right to life within Article 4, the Court noted the global trend towards the abolition of the death penalty. However, it acknowledged that while the prohibition of capital punishment in international law is increasingly prevalent, it remains subject to certain exceptions and is not yet universally absolute.

The AfCHPR noted in *Rajabu*, that "while Article 4 of the Charter provides for the inviolability of life, it contemplates deprivation thereof as long as such is not done arbitrarily. By implication, the death sentence is permissible as an exception to the right to life under Article 4 as long as it is not imposed arbitrarily."[9] To assess the condition of arbitrariness of death penalty, the AfCHPR offered a threefold test, analyzing the legality, court-competence and due process of law in connection with the capital penalty. It noted that the condition of legality of the death sentence in Tanzania was met, as it was provided for in the *Penal Code*[10] of Tanzania, in Section 197.[11] The criterion of a competent court was also met, as the death penalty was given by a trial court and in compliance with existing law. As for the required due process, the AfCHPR stated, that „due process does not only encompass procedural rights, strictly speaking, such as the rights to have one's cause heard, to appeal, and to defense but also extends to the sentencing process. lt is for this reason that any penalty must be imposed by a tribunal that is independent in the sense that it retains full discretion in determining matters of fact and law."[12] As the Penal Code of Tanzania does not allow for any trial court any other option but death penalty in the case of murder, such court "is thus deprived of the discretion, which must inhere in every independent tribunal to consider both the facts and the applicability of the law, especially how proportionality should apply between the facts and the penalty to be imposed.

[7] FAIX, M. – JAMALI, A. (2022): Is the African Court on Human and Peoples' Rights in an Existential Crisis? JAMALI, A. – FAIX, M. (2023): Human Rights Litigation in Africa Under Attack: Analysis of Backlash against Regional and Sub-Regional Courts. ADJOLOHOUN, S. H. (2020): A crisis of design and judicial practice? Curbing state disengagement from the African Court on Human and Peoples' Rights.
[8] African Court of Human and Peoples' Rights. (2019): Application 007/2015 - Ally Rajabu and Others v. United Republic of Tanzania.
[9] Ibid., § 98.
[10] [United Republic of Tanzania]. (1945, as revised [2022]): The Penal Code.
[11] Section 197. [Punishment for murder] of Tanzanian Penal Code reads: *A person convicted of murder shall be sentenced to death*.
[12] African Court of Human and Peoples' Rights. (2019): Application 007/2015 - Ally Rajabu and Others v. United Republic of Tanzania, § 107. For detailed analysis of *Rajabu* see also NOVAK, A. (2021): Hanging and the mandatory death penalty in Africa: the significance of Rajabu v Tanzania.

ln the same vein, the trial court lacks discretion to take into account specific and crucial circumstances such as the participation of each individual offender in the crime.“[13] As a consequence, the Court adjudicated that the mandatory death penalty prescribed in Section 197 of Tanzania's Penal Code contravened the due process provisions outlined in Article 7(1), thereby constituting an 'arbitrary' deprivation of the right to life under Article 4 of the Charter. Furthermore, while Article 4 does not explicitly exempt the death penalty, an implicit exception could be recognized provided that the deprivation of life was not deemed 'arbitrary.' In its deliberation, the Court emphasized that the 'right to life' was articulated in robust terms, whereas the exception to this right was articulated in comparatively weaker terms,[14] while mentioning that its opinion was in accordance with the relevant international case law as well.[15]

In *Rajabu*, the AfCHPR also stated that while the only possible method of death penalty execution allowed for by the Penal Code of Tanzania is by hanging, such procedure violates the right to human dignity put forward in Article 5 of the Charter. According to the AfCHPR, “many methods used to implement the death penalty have the potential of amounting to torture, as well as cruel, inhuman and degrading treatment given the suffering inherent thereto. ln line with the very rationale for prohibiting methods of execution that amount to torture or cruel, inhuman and degrading treatment, the prescription should therefore be that, in cases where the death penalty is permissible, methods of execution must exclude suffering or involve the least suffering possible.“[16] Execution by hanging is thus „inherently degrading“ and „inevitably encroaches upon dignity in respect of the prohibition of torture and cruel, inhuman and degrading treatment.“[17]

Setting aside the pecuniary reparations for the applicants, the AfCHPR alse ordered Tanzania to “take all necessary measures, within one year from the notification of this Judgment, to remove the mandatory imposition of the death penalty from its penal Code as it takes away the discretion of the judicial officer“, to “rehear the case on the sentencing through a procedure that does not allow the mandatory imposition of the death sentence and uphold the full discretion of the judicial officer“[18], and to publish the Judgement online on the websites of two government Ministries.[19]

The AfCHPR has held its position since in several other cases. In three recent judgments, *Jeshi v. Tanzania*[20] (hereafter “*Jeshi*”), *Gabriel v. Tanzania*[21] (hereafter “*Gabriel*”), and *William v. Tanzania*[22] (hereafter “*William*”), the AfCHPR developed its arguments concerning the violation of the provisions of the African Charter by mandatory capital punishment in Tanzania. The AfCHPR reiterated that enforcement of the mandatory death penalty infringes upon the right to life as outlined in Article 4 of the Charter and that the implementation of the death penalty by hanging violates the right to dignity as specified in Article 5 of the Charter.

[13] African Court of Human and Peoples' Rights. (2019): Application 007/2015 - Ally Rajabu and Others v. United Republic of Tanzania, § 109.
[14] Ibid., §§ 111-112.
[15] E. g. *Kennedy v. Trinidad & Tobago*, Comm. No. 84b/1999, U.N. Doc. CCPR/C/67/D/845/1999 (2002); (U.N.H.C.R.), 7.3; *Chan v. Guyana*, Comm. No. 913/2000, U.N. Doc. CCPR/C/85/D/91312000 (2006) (U.N.H.C.R.).
[16] African Court of Human and Peoples' Rights. (2019): Application 007/2015 - Ally Rajabu and Others v. United Republic of Tanzania, § 118.
[17] Ibid., § 119.
[18] Ibid., § 158.
[19] Ibid., §§ 165-167.
[20] African Court of Human and Peoples' Rights. (2024b): Application 017/2016 - Deogratius Nicolaus Jeshi v. United Republic of Tanzania.
[21] African Court of Human and Peoples' Rights. (2024a): Application 050/2016 - Crospery Gabriel & another v. United Republic of Tanzania.
[22] African Court of Human and Peoples' Rights. (2024c): Application 030/2016 - Romward William v. United Republic of Tanzania.

Moreover, in *Gabriel*, the AfCHPR mentioned that trial judge in the Applicants' trial had been aware of the limitations imposed on him by Section 197 of the Respondent State's Penal Code, as he had noted that "… the only punishment for murder is death sentence. This kind of sentence has been subject of criticism by many people including lawyers, human rights groups etc. I do not need to say much about it but as the country is in the process of having a new constitution, I think it is the right time to think of an alternative punishment for those who commit offences which attract the sentence of death."[23] Such expression, according to the AfCHPR, points to the "same fundamental problems that it has found with the mandatory regime for the death penalty in the Respondent State."[24]

In *William*, the AfCHPR also noted that "the concept of human dignity is of profound significance in the realm of individual rights. It serves as an essential foundation upon which the edifice of human rights is constructed. The right to dignity captures the very essence of the inherent worth and value that resides within every individual, irrespective of their circumstances, background, or choices. At its core, it embodies and upholds the principle of respect for the intrinsic humanity of each person and forms the bedrock of what it means to be truly human. It is in this sense that Article 5 absolutely prohibits all forms of treatment that undermines the inherent dignity of an individual."[25] The AfCHPR also reminded that being on the death row, especially for a long time, causes distress for the persons sentenced to death. Such situation, according to the AfCHPR, "is inherently inhuman and encroaches upon human dignity", as the "distress associated with detention awaiting execution of the death sentence stems from the natural fear of death and the uncertainty that a condemned prisoner has to live with."[26] Moreover, in this case, "the Applicant was sentenced to death without consideration of mitigating circumstances including an alternative sentence, as the domestic court's discretion was removed by law, in contravention of the Charter. Given these circumstances, the Applicant invariably suffered psychological and emotional distress which constitutes a violation of his right to dignity."[27]

In all three current cases, the AfCHPR ordered Tanzania to eliminate the requirement for the mandatory imposition of the death penalty from its legislation within six months of notification of the judgment, to implement all necessary measures within one year of the notification of the judgments to rehear the case regarding the sentencing of the applicants through a procedure that prohibits the mandatory imposition of the death penalty and preserves the discretion of the judicial officer and to implement all necessary measures within six months of the notification of the judgments to eliminate "hanging" as the method of execution for the death penalty from its laws. In *Jeshi* and in *Gabriel*, the AfCHPR alse ordered publication of the respective judgments on the websites of the Judiciary of Tanzania and of the Ministry for Constitutional and Legal Affairs of Tanzania.

Moreover, in *Gabriel*, the AfCHPR mentioned that "the violation of the right to life by the provision on the mandatory imposition of the death penalty goes beyond the individual case of the Applicants and is systemic in nature. The same applies to the violation in respect of execution by hanging... therefore, the Court deems it necessary to order the Respondent State to periodically report on the implementation of this judgment in accordance with Article 30 of the Protocol."[28]

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[23] African Court of Human and Peoples' Rights. (2024a): Application 050/2016 - Crospery Gabriel & another v. United Republic of Tanzania, § 97.
[24] Ibid., § 98.
[25] African Court of Human and Peoples' Rights. (2024c): Application 030/2016 - Romward William v. United Republic of Tanzania. , § 69.
[26] Ibid., § 70.
[27] Ibid., § 71.
[28] African Court of Human and Peoples' Rights. (2024a): Application 050/2016 - Crospery Gabriel & another v. United Republic of Tanzania, §§ 150-151.

The AfCHPR also noted, that Tanzania has not provided any information on the implementation of the AfCHPR judgments in previous cases where it was ordered to repeal the mandatory death penalty, and the deadlines given by the AfCHPR have since lapsed. Given this, the AfCHPR maintains that the orders are warranted both as an individual protective measure and as a general reiteration of the obligation and urgency for the Respondent State to abolish the mandatory death penalty and offer alternatives. Consequently, the AfCHPR ordered Tanzania „to report on the steps taken to implement this judgment within six (6) months from the date of notification of this judgment."[29]

Conclusion

In conclusion, the AfCHPR has played a pivotal role in shaping the regional human rights landscape in Africa, particularly through its stance on the mandatory death penalty as evidenced in the Rajabu v. Tanzania case and subsequent rulings. The court's judgments have underscored the inherent conflict between mandatory capital punishment and the fundamental rights to life and dignity enshrined in the African Charter on Human and Peoples' Rights. Despite the AfCHPR's clear directives, the persistent non-compliance by Tanzania reveals significant challenges in the enforcement of human rights norms at the regional level.

The AfCHPR's determination that Tanzania's violations are systemic highlights the broader issues of state sovereignty and the reluctance of national governments to fully embrace regional judicial oversight. This situation raises critical questions about the efficacy of regional human rights mechanisms and the political will of member states to adhere to their international obligations.

For the AfCHPR to realize its full potential, there must be a concerted effort to enhance its authority and ensure compliance with its judgments. This includes increasing the number of states accepting the court's jurisdiction, improving the enforcement mechanisms of its decisions, and fostering greater political commitment to human rights principles among African Union members. The development of a robust and responsive regional human rights system is crucial for the protection and promotion of human rights across the continent.

Ultimately, the AfCHPR's jurisprudence contributes significantly to the discourse on human rights in Africa, offering a framework for the gradual abolition of the death penalty and the promotion of human dignity. Continued advocacy and strategic litigation, supported by a collaborative approach between civil society, states, and international bodies, are essential to achieving lasting change and ensuring that the right to life and dignity is upheld for all individuals within the African human rights system.

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[29] Ibid., § 152.

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ASSESSMENT OF THE STATE OF PUBLIC INVESTMENT TO SUPPORT IVENTION AND INNOVATION IN THE BUSINESS ENVIRONMENT OF SMEs IN SLOVAKIA FOR YEARS 2012-2022

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Abstract: The paper deals with the assessment of the current state of public investment for the creation of inventions and innovations in the environment of small and medium-sized enterprises in Slovakia. SMEs are an important pillar of the economy and their ability to innovate and contribute to economic growth is essential for the development of the economy. Public investment plays an important role in providing financial support and creating conditions for the development of innovative activities. The research is based on the analysis of secondary data and scientific articles related to this issue. The theoretical framework of the paper is based on the concepts of innovation systems and public investment theory. The aim of the article is to provide an overview of the effectiveness of the state of public investment in support of innovation in Slovakia. The research results point to the fact that public investment has a significant impact on the ability of SMEs to innovate and compete in the market.

Keywords: innovation financing, SME, public financing, government innovation
JEL: H40, M13, O310

Introduction

In today's modern economy, small and medium-sized enterprises play an important role in helping to improve economic growth, employment and innovation. In Slovakia, SMEs make up the majority of businesses, making them an important pillar of the national economy. In today's dynamically evolving business environment, continuous innovation and the introduction of new technologies are essential for SMEs. Public investment has an important role to play in providing the necessary financial support and creating the right conditions for developing entrepreneurial activities. In recent years, the SR has focused on intensively supporting the innovation system through various publicly funded policies and programmes. These programmes are designed to promote research and development, technology transfer and increase the competitiveness of Slovak SMEs in international markets. Significant funds are allocated to grant schemes, tax breaks, investment incentives, and other forms of support to facilitate access to innovation resources. Our research is based on the analysis of secondary data, interviews with major innovation actors and case studies of successful Slovak SMEs. In the theoretical part, we focus on the literature on innovation systems and public investment theory. The empirical part provides an overview of public investment spending from 2012 to 2022. Public investment is an important support that can kick-start and accelerate innovation processes in firms. The effectiveness of these investments depends on a number of factors, including the quality of policy implementation, the ability of firms to use the resources provided, and the broader economic regulatory environmentFor this reason, it is necessary to regularly evaluate and review these initiatives to ensure their optimal functioning and maximum benefit for Slovak SMEs. The main objective of the paper is to investigate and answer 2 research questions - Is the development of investment in innovation through public and private investment in Slovakia on an increasing trend? What share of public and private investments are financing innovation in Slovakia? The following sections review the current state of the art in this area and the research methodology, the fourth analyses the results of the literature search, discusses the research findings and concludes by summarising and suggesting areas in which research could be taken in the field.

1 The current state of the problem addressed by domestic and foreign authors

The global international business environment is dynamically and continuously evolving and therefore innovation is a strategic solution to the challenges of changes in the international business environment and the development of the economy is supported by the benefits of innovation, knowledge and education.[1] Innovation is a purposeful evolving process whereby the end product is a positive change in the transformation process of the enterprise and better satisfaction of customers' needs.[2] SMEs have an important position, with the prosperity of the global economy built on the emergence and growth of the entire SME sector.[3] SMEs have a significant impact on all important macroeconomic indicators of a country such as GDP, employment, revenue to the state budget.[4] Investment in innovation generally consists of expenditure on research and development, marketing expenditure in bringing new products to the market, investment in production equipment. The importance of these items varies depending on the segment in which the enterprise operates and the type of innovation, with the majority of expenditures being spent on research and development, which comprise more than 50% of innovation of all expenditures.[5] SMEs usually do not have large amounts of financial resources, so they are forced to collaborate with other organizations to bring new products to the market.[6] The correlation between relationship and performance depends on many factors. Factors such as the year of establishment of the enterprise, the type of innovation and the cultural subtext of the enterprise significantly affect financial performance.[7]

1.2 External financing of innovation

All entrepreneurs are compelled to finance their business activities, for business start-up, for working capital purposes, and eventually debt finance their activities. External institutions that provide external financing are mostly banks, government institutions mostly provide financing through loans mostly to already established SMEs for operational and investment purposes of their activities.[8] Current literature note that the biggest barrier for SMEs is the lack of available capital.[9] With the intention of alleviating the financial limits of SMEs, developing and developed countries have introduced a system of credit guarantees, tax breaks and subsidies. Where countries do not have well-developed SME financing programmes or have them only to a limited extent, SMEs turn to informal sources.[10] Brancati[11] investigated how the bank's relationship with innovative SMEs influences the way they apply for bank financing for their activities in Italy. Both service and product innovations were rejected by the banks. The research concluded that businesses with financial constraints were approximately 30% more likely to participate in innovation compared to businesses that did not have financial constraints. The results also showed that firms that are high-tech oriented are much more credit constrained than firms that are not high-tech oriented, as banks find it difficult to evaluate investment projects that are technically challenging to implement. Maria Luisa Mancusi,

[1] FRYNAS, J. G. – MELLAHI, K., 2015, p. 229.
[2] ANDRIOPOULOS, C. et al., 2010, p. 108.
[3] SAVLOVSCHI, L. I. – ROBU, N. R., 2011, p. 278.
[4] KLYUCHNIKOV, A. et al., 2018, p. 283.
[5] HUDAKOVA, M. et al., 2018, p. 147.
[6] BELÁNOVÁ, K. et al., 2020, p. 152.
[7] NIZAEVA, M. et al., 2019, p. 1453.
[8] SIEKELOVA, A. et al., 2019, p. 288.
[9] BELAS, J. et al., 2018, p. 58.
[10] ABE, M. et al., 2015, pp. 2-32.
[11] BRANCATI, E., 2015, p. 450.

Andrea Vezzuli come to similar findings. The research found that innovative SMEs have lower loan approvals mainly due to higher risk perception by banks[12] They also found that lower lending by banks has constraints for SMEs in the form of reduced R&D budgets, which has a negative impact on innovation. When analyzing the potential external financing options for innovation, we can agree with, which states that due to the high uncertainty and risk in the early stages of SME entrepreneurship, the overall sources of financing for businesses are relatively limited.[13]

1.3 Government incentives for innovation

Most countries allocate funds for grants and R&D-related expenditures with the primary intention of alleviating the debt situation and lack of equity capital for companies' innovation projects.[14] According to,[15] it is important to understand the relationship between the effects of public support and the response of enterprises to these policy instruments, especially when different enterprises are considered. Many authors have expressed a positive view of the impact of state aid on innovation in the SME segment. National governments have an important role in developing policy strategies for the purpose of supporting the transition to an innovation-driven economy. Yao Wang et al.[16] found that enterprises that innovate and use public resources have a positive impact on performance. They concluded that direct government subsidy for R&D projects has an encouraging effect for innovative enterprises to invest more in R&D activities.

2 Research design

The main objective of the paper is to assess the state of private and public investment for innovation purposes in the business environment in Slovakia. Fulfilling the main objective was carried out through a literature search of currently available literature research and studies carried out for the period from 2012 to 2022. Secondary data were processed through available sources based on empirical research and scientific databases such as (Scopus, Google Scholar, Web of Sciences) and other sources from major authors and institutions (MFSR, SARIO, MHSR, OECD) dealing with this area of research were also used. The search was carried out by defining keywords (innovation financing, public expenditure, financial support for innovation).

In this paper, the main focus is on finding answers to the research questions:

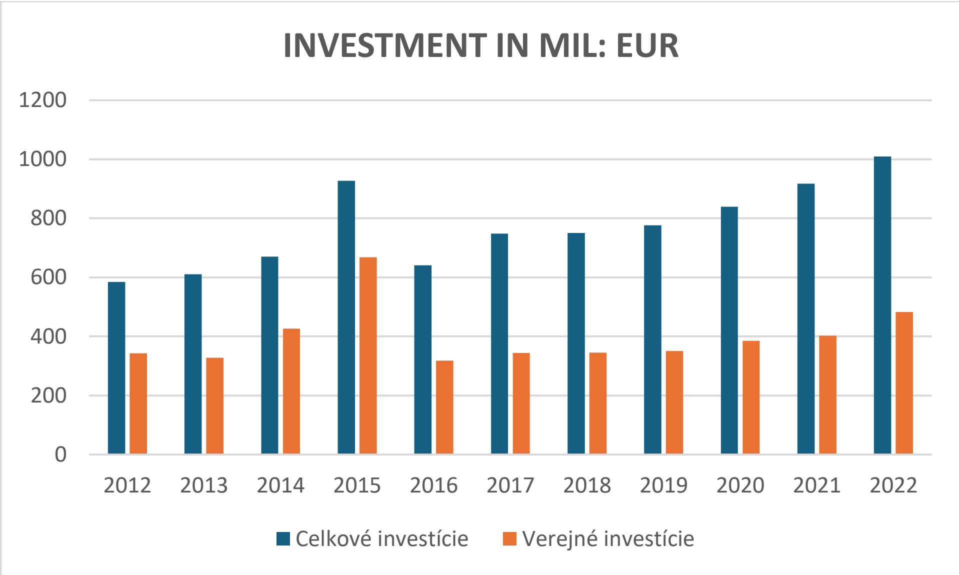
1. "Is the development of investment in innovation through public investment an increasing trend in Slovakia?"
2. What share of public and private investment is financing innovation in Slovakia?

3 Results

Based on the available sources, we present in Figure 1 the total investments made and the share of public investments in total investments in Slovakia made by SMEs in the surveyed years 2012 to 2022.

[12] COWLING, M., 2016, p. 566.
[13] BHATTACHARYYA, A. et al., 2023, p. 3945.
[14] AHMADOV, V., 2015, p. 115.
[15] BELAS, J. et al., 2018, p. 58.
[16] WANG, Y. et al., 2022, p. 1350.

Figure 1 highlights the total investment spent and private investment by year in Slovakia from 2012 to 2022



Source: *own processing based on* https://www.sario.sk/sites/default/files/sario-research-and-development-2024-02-21.pdf

Figure 1 shows that overall spending has been on an upward trend since 2012. Interestingly, in 2015 the total amounted to 927 million with only 259 coming from the private sector. This is mainly due to the exhaustion of earmarked European funds to support investment in science and research. In 2016, the share of public spending was no longer even half of all spending. Private investment has shown an increasing trend since 2014 and, in particular, has had a higher share of total expenditure in each year. From the figure, it can be observed that in each of the years under review, private investment accounts for more than 50% of all innovation spending. It can also be seen that the government spent 19% of all investments made on average over the years under review, while the private sector spent 56% and scientific institutions 26%. Within the segments, technology investments in innovation accounted for the largest share, followed by life sciences, pharmaceutical sciences, social to agro investments.

Public spending on science and research showed a slight increase from 2011 to 2015, with the largest increase in 2015, mainly due to the drawdown of European Union funds that were made available to the Slovak Republic that year. However, after 2015, the share of public expenditure showed stagnation, rising to 0.98% in 2022, as can be seen in Figure 2. Private investment has been on an upward trend in the long term and has already surpassed the share of public spending after 2016 and has been higher than public spending since that year. The main indicator used for cross-country assessment of R&D expenditure is the GERD (Gross domestic expenditure on R&D). It includes all current and capital expenditure in a given fiscal year. The data are collected and evaluated by the Statistical Office of the Slovak Republic. Slovakia's main strategic document for the future in the field of science and research is the National Strategy for Research, Development and Innovation 2030. It contains a number of objectives in this area, but one of them is to achieve expenditure at the level of 2% of GDP.

4 Discussion

Investment in innovation is a prerequisite for the development of enterprises in the business environment. In this paper we examine the importance of public investment in supporting SME innovation in Slovakia. Based on the analysis of the current state of the art, we identify several important findings and questions that are relevant for further research decision-making in this area. There is a need to simplify the administrative barriers associated with access to public funding. Priority is given to the use of calls for proposals and grants from government programmes as a source of public funding for investment, but these are limited only to the amount of the GDP allocation for science and research. Private investment is used as shareholder contributions, internal sources of funding (profits made, depreciation). The Lisbon strategy of 2000 aims to spend 3% of GDP on science and research. Slovakia does not even reach 1% based on our research results. Our research on the assessment of the state of public investment can be summarised as follows: Slovakia allocates a lower percentage of GDP to capital expenditure than the EU average in the long term. In none of the years studied did the percentage of innovation funding through public investment reach a higher percentage than private investment, except in 2015, when Slovakia had the opportunity to draw down and reallocate available public resources from EU funds. The answer to the research questions is: Investment in innovation in Slovakia is on a slightly increasing trend. In Slovakia over the years under review, investment from the private sector is more prevalent than public investment. We arrived at the results of the research questions by examining the financing of innovation through public and private investment. Last but not least, we would like to stress the need for further research on the effectiveness and impact of public investment on the innovation performance of SMEs in Slovakia. Important elements are, for example, the evaluation of the long-term impact of support programmes, the measurement of innovation performance and the analysis of specific factors affecting the effectiveness of public investment. Overall, the discussion suggests the need for further research to improve the effectiveness of public investment to support SME innovation in Slovakia.

Conclusion

The assessment of public investment in support of innovation and invention in the SME sector in Slovakia from 2012 to 2022 reveals crucial insights into the role and effectiveness of such investments in fostering economic growth and competitiveness. This study highlights several key findings and provides actionable recommendations to enhance the impact of public investments on the innovation landscape of Slovak SMEs. Key Findings

Significant Investment Efforts:Over the past decade, Slovakia has committed substantial public funds towards fostering innovation in the SME sector. Various national programs and European Union-funded initiatives have been implemented to bridge the resource and capability gaps faced by SMEs.

Positive Impact on Innovation Capacity:Public investments have led to notable improvements in the innovation capacity of SMEs. Many businesses have benefited from enhanced access to advanced technologies, research and development (R&D) facilities, and innovation-related knowledge.

Challenges and Barriers:Despite the positive impact, several challenges persist. SMEs often face difficulties in navigating complex administrative procedures associated with public funding. Additionally, there are issues related to the adequacy and timely disbursement of funds, which can hinder the effective implementation of innovative projects.

Disparities in Access and Utilization:There are significant disparities in the access to and utilization of public investment funds among different regions and sectors. Some SMEs, particularly those in less developed regions or traditional industries, are less likely to benefit from innovation support programs.

Success Stories and Best Practices: The study identifies several success stories where public investment has led to breakthrough innovations and significant business growth. These cases provide valuable lessons and best practices that can be replicated and scaled.

Recommendations

1. Streamlining Administrative Processes:
    - Simplifying and streamlining the administrative processes for accessing public funds can significantly reduce the burden on SMEs and improve the efficiency of fund utilization.
2. Enhancing Support Mechanisms:
    - Providing comprehensive support mechanisms, including mentoring, advisory services, and technical assistance, can help SMEs better leverage public investments for innovation.
3. Targeted Interventions:
    - Developing targeted interventions that address the specific needs of SMEs in different regions and sectors can ensure a more equitable distribution of benefits and promote inclusive innovation.
4. Improving Fund Allocation and Disbursement:
    - Ensuring timely and adequate disbursement of funds is critical for the successful implementation of innovative projects. Policymakers should focus on improving the efficiency of fund allocation and monitoring processes.
5. Promoting Collaboration and Networks:
    - Encouraging collaboration between SMEs, research institutions, and large enterprises can create a more vibrant innovation ecosystem. Networks and partnerships can facilitate knowledge exchange and resource sharing, driving collective growth and innovation.

Future Outlook

The findings of this study underscore the importance of sustained public investment in fostering a robust innovation ecosystem for SMEs. As Slovakia continues to navigate the challenges of a rapidly changing global economy, strategic public investments in innovation will be crucial for maintaining competitiveness and achieving long-term economic growth. Policymakers, business leaders, and stakeholders must work collaboratively to address the identified challenges and implement the recommended strategies. By doing so, Slovakia can build a more resilient and innovative SME sector, capable of driving economic development and improving the quality of life for its citizens.In conclusion, the assessment of public investment in support of innovation and invention in Slovak SMEs provides a comprehensive understanding of the current state, challenges, and opportunities. The insights and recommendations presented in this study offer a roadmap for enhancing the effectiveness of public investments, fostering a culture of innovation, and ensuring the sustainable growth of the SME sector in Slovakia.

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ANALYZING CONVENTIONAL AND ISLAMIC FINANCIAL IMPACT IN UZBEKISTAN: A COMPARISON OF WORLD BANK AND ISLAMIC DEVELOPMENT BANK PROJECTS[1]

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Abstract: This article explores Uzbekistan's development path and assesses the expanding collaboration between the Islamic Development Bank (IsDB) and the World Bank Group (WBG). It contrasts the approaches and contributions of these institutions to the economic progress and development of independent Uzbekistan. The paper is divided into five sections. The first section reviews the existing literature on Islamic finance, while the second section provides a comparative analysis of the deals made by the WBG and IsDB in Uzbekistan. The third and fourth sections discuss the evolution of the engagements of the WBG and IsDB in the country. The fifth section compares the shared and distinct attributes of the institutions' involvement in Uzbekistan. Through an analysis of these institutional engagements, the paper highlights the unique roles of the IsDB and the WBG in advancing Uzbekistan's development objectives. Additionally, it emphasizes the potential for Uzbekistan to adopt Islamic finance as a complementary approach to promoting inclusive and sustainable economic growth.

Keywords: islam, cooperation, Uzbekistan, WBG, IsDB, Islamic finance
JEL: Z12, G21, F30

Introduction

The interaction between religion and a country's development, particularly through the operations and behaviour of banks and their support for investment projects, is largely influenced by internal factors within the banking system. In Uzbekistan, however, the significant influence of internally generated banking variables is mitigated by the dominance of state-owned banks in which the government, as the major shareholder, appoints management and the board of directors. There are 35 banks operating in Uzbekistan, of which 10 are state-owned, 6 have foreign equity participation and 2 are foreign banks.[2] Unlike its main regional competitor Kazakhstan, which has minimal state participation in its banking sector, Uzbek state-owned banks control 80% of the sector's assets and capital and hold 67% of deposits.[3]

As a constitutional and secular state, Uzbekistan maintains a tolerant attitude towards religion. Its political leadership recognises Islam as a key part of the Central Asian cultural heritage that shapes the spiritual dimension of society, without accepting it as a dogmatic religious system. Since independence, Uzbekistan has consistently rejected the notion that Islam should serve as the basis of its political and social order.

By comparing research showing the significant impact of religious beliefs on financial decisions,[4] with an examination of the long-term performance of selected financial institutions, this article examines the extent to which international institutions, particularly the conventional

[1] This article was written as part of the project "Alternative Media in Slovakia and Their Coverage of Economic and Political Issues" (I-24-101-00), funded by the University of Economics in Bratislava.
[2] DEPOZIT.UZ (2023): Vse banki Uzbekistana: po sostojaniju na avgust 2023 goda.
[3] TOFANJUK, E., PEREMITIN, G. (2022): 10 nadežnyh bankov Uzbekistana.
[4] KHAN, A. K. (2010): God, Government and Outsiders: The influence of Religious Beliefs on Depositor Behavior in an Emerging Market.

operations of the WBG influence Uzbekistan's development compared to the Quranic and Shariah-based activities of the IsDB. This comparative analysis aims to shed light on how these different banking paradigms contribute to Uzbekistan's economic growth and development.

1 Literature review

The independent post-Soviet republics in Central Asia have emerged as significant actors in the establishment and growth of Islamic banking and financial institutions. The Islamic Development Bank (IsDB) has leveraged its financial resources to integrate this landlocked region into the trade networks of the broader Muslim world, thereby facilitating various developmental projects within the banking and financial sectors.[5] Islamic finance has increasingly become a pivotal funding source in Kazakhstan, which stands as Uzbekistan's primary regional competitor. Despite Uzbekistan's progress in adopting Islamic financial projects, the nation's social, economic, and political fabric has been predominantly influenced by its pre-Soviet legacy, the authoritarian tendencies of its presidential leadership, and its constitutionally guaranteed secularism.

Abrorov and Imamnazarov emphasize the critical need for the introduction of Islamic finance in Uzbekistan, positioning it as a vital source of funding and a driver of economic growth. Their research, which examines dualistic nations that have implemented Islamic financial instruments, reveals that Islamic finance promotes economic development and efficiency, challenging rather than complementing the conventional financial system.[6]

The analysis conducted by Toymuxamedov, Norov, Ibodullayeva et al. identifies the most prominent strength of Islamic commercial banking services in Uzbekistan as the attraction of additional financial resources from the IsDB to finance the national economy. They argue that Islamic financial principles can enhance loan efficiency, foster sustainable development, mitigate financial crises, and improve the competitiveness of banks. However, they also note significant challenges, such as the absence of a comprehensive legal framework, limited public awareness, skepticism towards new financial services, and the hesitation of Islamic banks to extend substantial loans.[7]

Sotiboldievich suggests that the Islamic financial services sector will play a crucial role in shaping Uzbekistan's future by increasing foreign investor interest and reflecting the deep-seated Islamic cultural heritage. The government's proactive approach to harnessing this potential is also highlighted.[8] However, the expansion of Islamic finance in the post-Soviet context must navigate the complexities of the region's clannish state structures and local political nuances, which may perceive the rising influence of the IsDB as a threat to the established ruling clan system.

Kanagaretnam, Lobo, and Wang (2015) present evidence suggesting that banks in more religious countries exhibit lower risk-taking behaviors, although they acknowledge that establishing a direct causal link between religiosity and bank earnings management is challenging.[9] Conversely, Cantrell and Yust (2018) find that religiosity is generally correlated with increased bank risk, higher quality financial reporting, and greater conservatism. They

[5] GRESH, J. F. (2008): Sodeystvuya protsvetaniyu islamskiy bank razvitiya podem islamskih bankov i finansovyh institutov v stranah Tsentralnoy Azii, pp. 157-158.
[6] ABROVOV, S. – IMAMNAZAROV, J. (2021): Islamic fintech instruments: new opportunities for digital economy of Uzbekistan, pp. 665-666.
[7] TOYMUXAMEDOV, I. R. – NOROV, A. R. – IBODULLAYEVA, M. T. – BEKMUDOROVA, G. – FARMANOVA, U. A. (2023): Prospects of Implementing Islamic Financial Mechanisms, pp. 37-38.
[8] SOTIBOLDIEVICH, R. T. (2022): The role of Islamic Finance in Banking Operations, p. 56.
[9] KANAGARETNAM, K. – LOBO, G. J. – WANG, C. (2015): Religiosity and Earnings Management: International Evidence from the Banking Industry, pp. 277-296.

argue that efficient risk management and reduced exposure to real estate lending contribute to enhanced bank performance.[10]

2 A Comparative study of WBG and IsDB deals in Uzbekistan

This analysis focuses on Uzbekistan's strategic economic transformation and explores the distinct contributions of the WBG and the IsDB to the country´s development, considering the unique roles they play. President Shavkat Mirziyoyev's vision to elevate Uzbekistan's GDP to $100 billion by 2027, from $92.6 billion in 2023, and to achieve upper-middle income status from its current emerging lower-middle income standing[11] is ambitious. Achieving this requires extensive economic reforms, supported by both multilateral and bilateral international partners. The WBG and the IsDB are pivotal in this process, each creating unique perspectives and approaches.

The IsDB focuses on promoting economic and social progress within its member states and enhancing the well-being of Muslim communities globally. In Uzbekistan, the IsDB emphasizes inclusive and sustainable growth aligned with the nation's developmental priorities. This brings into question the relevance of Islamic principles in fostering these initiatives. Conversely, the WBG supports Uzbekistan's aspiration to become an upper-income industrialized nation by 2030. This involves increasing economic efficiency and competitiveness, reducing dependency on primary commodity imports, strengthening the financial sector, and fostering diversified production with a focus on high-value-added outputs.[12]

A significant rise in the demand for Islamic financial instruments in Uzbekistan highlights the importance of IsDB's engagement. The effort could (potentially) establish a flexible Islamic financial sector within the country. Meanwhile, the WBG continues to be a critical strategic advisor, integral to the implementation of economic reforms. The dynamic between these institutions raises the question of whether the WBG's influence is being ousted by Islamic institutions like the IsDB, or if a coordinated approach is being pursued where the Islamic factor matches broader secular objectives.

Despite the global expansion of Islamic finance and Uzbekistan's intentions to leverage it for economic and political reforms, the development of a legal framework for Islamic financial institutions remains sluggish. Announcements of cooperation with the IsDB and the UNDP to support Islamic financial products and services have yet to materialize into significant practical advancements.[13] This stagnation is evident, even in the 7th year of the current administration, as seen in the lack of growth in domestic investments, foreign investment inflows, and the expansion of the deposit base.

The WBG has demonstrated a stable and multi-faceted partnership with Uzbekistan for over three decades, while the IsDB has been making strides to catch up, albeit in a non-political environment and in coordination with the government. Nonetheless, the IsDB's vision of an Uzbekistan adhering to Sharia principles (significantly impacting sustainable human capital development) and integration of Islamic finance into the national economic framework are still evolving.

A differentiated comparison of the roles and impacts of the WBG and the IsDB in Uzbekistan's development reveals the nuanced contributions of each institution. By examining their approaches and focus areas, we gain a clearer understanding of how these organizations are shaping the socio-economic landscape of Uzbekistan.

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[10] CANTRELL, B. W. – YUST, Ch. (2018): The Relation between Religiosity and Private Bank Outcomes, p. 86.
[11] MIRZIYOYEV, S. (2022): We aim to make Uzbekistan an upper-middle income country by 2030.
[12] IBRAGIMOV, M. (2022): Green growth strategic framework Uzbekistan.
[13] AL ANSARI, R. (2020): State of the Global Islamic Economy Report - Interview with Redha Al Ansari, Head of Islamic Finance Research, Refinitiv, p. 90.

Table 1: The evolution of Uzbekistan and WBG/IsDB cooperation

<table>
<tr><td></td><td colspan="4">WBG</td><td colspan="4">IsDB</td></tr>
<tr><td>Year of Membership</td><td colspan="4">1992</td><td colspan="4">2003</td></tr>
<tr><td>First Assistance</td><td colspan="4">1993
Institution Building and Technical Assistance Project (loan)
21 000 000 $</td><td colspan="4">1991
Construction of Hostel for Mir Arab Islamic Institute
in Boukhara (special assistance)
295 516 $</td></tr>
<tr><td>Number of projects</td><td colspan="4">80</td><td colspan="4">139</td></tr>
<tr><td>Portfolio</td><td colspan="4">11,037 340 000 $ bn</td><td colspan="4">3,401.4 $ bn</td></tr>
<tr><td rowspan="8">WBG Group vs. IsDB Group</td><td colspan="2">Number of votes</td><td colspan="2">% of voting power</td><td colspan="2">Number of votes</td><td colspan="2">% of voting power</td></tr>
<tr><td colspan="4">allocated differently in each WBG organization</td><td colspan="2">1 774</td><td colspan="2">0,04%</td></tr>
<tr><td></td><td>Year of membership</td><td>% of votes</td><td>Number of votes</td><td></td><td>Year of membership</td><td>% of subscribed</td><td>Subscribed</td></tr>
<tr><td>IDA</td><td>1992</td><td>0.24</td><td>73,936</td><td>ICD</td><td>2004</td><td>2,1</td><td>50 000</td></tr>
<tr><td>IBRD</td><td>1992</td><td>0.18</td><td>5,070</td><td>ISFD</td><td>2008</td><td>0.01</td><td>300 000</td></tr>
<tr><td>IFC</td><td>1993</td><td>0.18</td><td>43,142</td><td>ITFC</td><td>2019</td><td>0.06</td><td>50</td></tr>
<tr><td>MIGA</td><td>1993</td><td>0.19</td><td>417</td><td>ICIEC</td><td>2019</td><td>0.08</td><td>118</td></tr>
<tr><td>ICSID</td><td>1995</td><td>n/a</td><td>1</td><td>IsDBI</td><td>n/a</td><td>n/a</td><td>n/a</td></tr>
<tr><td>most supported sectors</td><td colspan="4">infrastructure, agriculture, education, healthcare, governance, private sector development</td><td colspan="4">agriculture, (Islamic) finance, healthcare, transport, energy</td></tr>
</table>

Source: Own elaboration based on the data from worldbank.org and isdb.org.

3 The evolution of WGB engagement in Uzbekistan

The WBG initially emerged as the primary advisor for the newly established Central Asian republics, focusing on structural reforms, public finance management, and banking sector restructuring. Despite initial political challenges that slowed Uzbekistan's acceptance of WBG loans and grants—with Kazakhstan taking the regional lead in loan acceptance—a significant trend over the past decade has been the expanding collaboration between Uzbekistan and the WBG. This is evident from the support provided by the WBG and the International Finance Corporation (IFC) since 2017, which has facilitated extensive reforms in Uzbekistan's economy and private sector.[14]

3.1 Analysis of the WBG motives in Uzbekistan (1995 - 2022)

Uzbekistan embarked on a trajectory of economic transformation later than the other USSR countries, and the initial interaction with the WBG was to develop the institutional and

[14] WORLD BANK (2022): Uzbekistan's Strategic Reforms Receive Expanded World Bank Support.

technical capacities of the government through policy dialogue. The WBB was to ensure that reforms were implemented in the short term and sustained in the medium term:

- structural reform: incentive structure, privatization/enterprise restructuring, finance
- sectoral reform: agriculture, energy, mining, infrastructure, environment and water management, health

In the initial period of Uzbekistan's independence, the WB played a catalytic role in assisting the Uzbek government in designing a reform program and securing its financing,[15] but the strategy of supporting rapid reforms, following the model of countries in the region, proved ineffective in Uzbekistan.

The slow implementation of structural reforms, such as trade liberalization, and Uzbekistan's withdrawal from the IMF agreement, prompted the WBG to create incentives for structural reforms through investments, particularly project loans in the financial sector and export industries, and to deepen political dialogue. The operations conducted by the WBG in Uzbekistan were, on average, 2-3 times more expensive and time-consuming than in other regional countries due to the multi-level governmental decision-making process.[16]

An evaluation of these efforts indicates that while initial strategies faced challenges, the WBG's adaptive approach and sustained engagement have been crucial in supporting Uzbekistan's gradual but steady economic reform trajectory.

Table 2: The WBG involvement in Uzbekistan in the early 21st century

Strengths	***Weaknesses***	***Threats***	***Opportunities***
large population	unsatisfactory macroeconomic framework	strict limitations on economically viable projects	thoughtfully selected investments
Uzbek strategic geographical position + influence in CA	uneven outcomes of structural reforms since the late 1996	partial macroeconomic reforms, higher risk of liberalization	sustained political dialogue
interest in expanding collaboration with the WBG	deterioration in creditworthiness	ongoing uncertainty regarding a decisive policy shift	generating incentives for deeper structural reforms

Source: Own elaboration based on the data from worldbank.org and CAS FY02-04.

The CAS08-11 reflected a bilateral aid strategy of the WBG in Uzbekistan, contingent upon the extent of agreement with governmental bodies. This strategy involved:

- full engagement: encompassing loans, analytical services, and advisory support in areas where a comprehensive agreement with the government existed regarding the manner and pace of reforms (infrastructure, human development, social inclusion)
- limited engagement: involving analytical services and advisory support in areas with no agreement or incomplete agreement (industrial competitiveness, diversification).[17]

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[15] SANDSTROM, S. (1995): Country Assistance Strategy of the World Bank Group for the Republic of Uzbekistan, pp. 10-16.

[16] WORLD BANK. (1998): Memorandum of the President of the IBRD and the IFC to the Executive Directors on a CAP for the Republic of Uzbekistan, p. 13.

[17] WORLD BANK. (2008): IBRD, IDA and IFC Country Assistance Strategy for the Republic of Uzbekistan for the period FY08-FY11, pp. 18-23.

3.2 The WBG as the principal strategic advisor to the government in the realm of reforms

The National Development Strategy for 2017-2021 (NDS), formulated following Uzbekistan's 1st presidential transition, set out a comprehensive plan for the radical transformation of the Uzbek economy and public institutions. Under the new administration, the WBG emerged as a credible partner and primary advisor on economic reforms.

The WBG´s program shifted from purely infrastructure projects to building market institutions, improving social protection, and regional development. The IFC began to focus more on supporting the privatization process, enhancing corporate governance, continuing the transformation of the cotton sector, and deepening and diversifying the financial sector.[18]

The WBG worked closely with multilateral and bilateral development partners, particularly ADB, EU, IsDB through coordinated technical assistance and joint or parallel financing of investment operations. The partnership with IsDB has translated into support for sustainable infrastructure development and the foundations for private sector-driven economic diversification. In partnership with the WBG, the IsDB has provided $ 2.4 million in grants for transport, 0.5 million USD for public sector capacity building, and a parallel loan of $ 190 million to support the education sector.[19] Aligned with Uzbekistan's NDS for 2022-2026, the WBG has committed to assisting the government in the green agenda, transitioning to a low-carbon economy, environmental sustainability, and more efficient utilization of natural resources in the country. This strategic advisory role underscores the WBG's ongoing importance in guiding Uzbekistan through its ambitious reform journey.

Table 3: WBG operations in Uzbekistan (1993-2023)

<table>
<tr><td colspan="7" rowspan="2">Number of operations</td><td colspan="2" rowspan="2">80</td><td colspan="3">28 active</td></tr>
<tr><td colspan="3">52 completed</td></tr>
<tr><td colspan="7"></td><td colspan="5">*dropped 11, pipeline 4</td></tr>
<tr><td colspan="7">Total Project Financing</td><td colspan="5">11,037 340 000 $ bn</td></tr>
<tr><td colspan="7">IBRD Commitment</td><td colspan="5">4,566 530 000 $ bn</td></tr>
<tr><td colspan="7">IDA Commitment</td><td colspan="5">5,778 900 000 $ bn</td></tr>
<tr><td colspan="7">Grant Amount</td><td colspan="5">691,91 $ m</td></tr>
<tr><td colspan="12">Financing type of WBG operations (1993-2023)</td></tr>
<tr><td rowspan="2"></td><td colspan="5">Timeframe 1993-2016</td><td colspan="6">Timeframe 2017-2023</td></tr>
<tr><td>IBRD</td><td>IDA</td><td colspan="3">Grant</td><td>IBRD</td><td>IDA</td><td colspan="4">Grant</td></tr>
<tr><td>operation</td><td>19</td><td>18</td><td colspan="3">3</td><td>17</td><td>24</td><td colspan="4">9</td></tr>
<tr><td>total</td><td>1,29 $ bn</td><td>1,26 $ bn</td><td colspan="3">371,7 $ m</td><td>3,28 $ bn</td><td>4,52 $ bn</td><td colspan="4">320,21 $ m</td></tr>
<tr><td colspan="3">Note:
2x IBRD + IDA
410,79 $ m</td><td>Grant only</td><td>Grant + IBRD (2)</td><td>Grant + IDA</td><td colspan="2">Note:
8x IBRD + IDA
3,74 $ bn</td><td>Grant only (3)</td><td>Grant + IBRD</td><td>Grant + IDA (5)</td><td>Grant + IDA +</td></tr>
</table>

[18] WORLD BANK (2011): IBRD, IDA and IFC Country Assistance Strategy for the Republic of Uzbekistan for the period FY12-FY15, p. 12.

[19] WORLD BANK (2020): IBRD, IDA, IFC and MIGA Performance and Learning Review of the Country Partnership Framework for Uzbekistan for the period FY16-FY20, pp. 9-12.

								IBRD
	12,70 $ m	9,00 + 350 $ m	N/A		4,08 + 2,73 + 46,25 $ m	N/A	82 +14,35 +7,8+ 100+47 $ m	16 $ m

Source: Own elaboration based on the data from worldbank.org.

4 The evolution of IsDB financing in Uzbekistan

Following Uzbekistan's official accession to the IsDB in 2003, the country's socio-economic development has been supported through extensive financial and non-financial activities. Uzbekistan is seen as a strategic partner with significant development potential within the region, though still has not reached its own potential for Islamic finance within the IsDB.

Despite being a member for over 20 years, the penetration of Islamic finance in Uzbekistan remains minimal. Moreover, Uzbekistan is still relatively new to Sharia-compliant credit and investment insurance, having joined the Islamic Corporation for the Insurance of Investment and Export Credit (ICIEC) in 2019 as its 46th member state.[20] While Uzbekistan has made progress, the late entry indicates that significant opportunities for development of Islamic finance remain untapped.

Table 4: IsDB operations in Uzbekistan (1991-2022)

<table>
<tr><td colspan="3" rowspan="2">Number of operations</td><td colspan="2" rowspan="2">134</td><td>65 active</td></tr>
<tr><td>69 completed</td></tr>
<tr><td colspan="3">Total Financing</td><td colspan="2">3,401.4 $ bn</td><td>2,385.2 ID m</td></tr>
<tr><td colspan="3">Project Financing</td><td colspan="2">2,435.9 $ bn</td><td>1,694.2 ID m</td></tr>
<tr><td colspan="3">Trade Financing</td><td colspan="2">961,1 $ m</td><td>688.0 ID m</td></tr>
<tr><td colspan="3">Technical Assistance Operations</td><td colspan="2">3,00 $ m</td><td>2.1 ID m</td></tr>
<tr><td colspan="3">Special Assistance Operations</td><td colspan="2">1,50 $ m</td><td>1.0 ID m</td></tr>
<tr><td colspan="6">Financing type of IsDB operations (1991-2022)</td></tr>
<tr><td rowspan="2"></td><td colspan="2">Timeframe 1991-2016</td><td colspan="3">Timeframe 2017-2022</td></tr>
<tr><td>Number of operations</td><td>Size of investments</td><td></td><td>Number of operations</td><td>Size of investments</td></tr>
<tr><td>Special assistance</td><td>8</td><td>1,1 $ m</td><td rowspan="3">Special assistance</td><td rowspan="3">2</td><td rowspan="3">0.4 $ m</td></tr>
<tr><td>Murahaba</td><td>16</td><td>266,6 $ m</td></tr>
<tr><td>Equity</td><td>1</td><td>5,00 $ m</td></tr>
<tr><td>Istisnaa</td><td>9</td><td>609,4 $ m</td><td rowspan="3">Project financing (Istisnaa, Instalment Sale, Leasing)</td><td rowspan="3">5</td><td rowspan="3">884,9 $ m</td></tr>
<tr><td>Ijara (Leasing)</td><td>11</td><td>412, 2 $ m</td></tr>
<tr><td>Technical assistance</td><td>5</td><td>1,10 $ m</td></tr>
<tr><td>Loan</td><td>3</td><td>32,50 $ m</td><td></td><td>13</td><td>1,90 $ m</td></tr>
</table>

[20] ICIEC (2024): Member Country Profile – Uzbekistan.

Instalment Sale	11	446 $ m	*Technical assistance*		
Combined financing	3	45,00 $ m			
Total	67	**1, 819.7 $ bn**	Total	67	**1,581.7 $ bn**

Source: Own elaboration based on the data from isdb.org.

5 Comparison

The efficacy of financial assistance provided by the IsDB and the WBG is contingent upon the unique requirements of Uzbekistan, the preferences of the Uzbek government, and the specific terms and conditions of the financing arrangements, as well as the tangible outcomes realized through these financial initiatives. WBG funds deliver considerable financial resources and extensive expertise in developmental projects, while IsDB funding offers greater flexibility and alignment with Islamic principles. An evaluation of both institutions' contributions reveals that the ultimate success of their financial interventions is intricately linked to how well they address Uzbekistan's developmental priorities and socio-economic profile.

Table 6: Common and different features of IsDB and WBG involvement in Uzbekistan

<table>
<tr><th></th><th></th><th>WBG</th><th>IsDB</th></tr>
<tr><td rowspan="4">COMMON FEATURES</td><td>general focus</td><td colspan="2">sustainable growth of Uzbekistan, economic development, poverty reduction, improving the quality of life for the Uzbek population</td></tr>
<tr><td>key sectors of mutual cooperation</td><td colspan="2">collaboration on projects within:
- private sector development: promoting private sector growth, entrepreneurship;
- social care system: improving access to education, healthcare, and social protection services
- infrastructure: transportation, energy, water supply, enhancing access to basic services;</td></tr>
<tr><td>capacity building</td><td colspan="2">providing technical assistance, trainings, knowledge sharing</td></tr>
<tr><td>future perspectives for cooperation</td><td colspan="2">- poverty reduction and the enhancement of primary healthcare in rural areas,
- ensuring access to clean drinking water in the western regions of Uzbekistan,
- modernizing essential infrastructure</td></tr>
<tr><td rowspan="4">DIFFERENT FEATURES</td><td>operational principles</td><td>conventional financial mechanisms</td><td>Islamic Finance principles (riba, ethical values)</td></tr>
<tr><td>financial mechanisms</td><td>loans and grants</td><td>Sharia-compliant financing (Murabaha, Ijarah, Sukuk...)</td></tr>
<tr><td>priority sectors</td><td>broader range of sectors: infrastructure (roads, railways, energy, water supply), governance, agriculture, education, healthcare,</td><td>sectors align with Islamic principles: Islamic finance, infrastructure development, SMEs, education, healtcare</td></tr>
<tr><td>value added</td><td>- WBG's extensive experience and global reach
- global expertise and best practices to Uzbekistan
- complex development challenges
- long-term objectives</td><td>- IsDB's focus on Islamic finance and its alignment with Uzbekistan's religious and cultural values = tailored financial solutions
- Islamic finance expertise</td></tr>
</table>

	most active sub-institution	*IBRD* (loan assistance, technical assistance, policy advice) in the MICs	*ICD* (access to finance, promotion of Islamic finance and investment)
	alignment with UZB priorities	alignment with Uzbekistan's development agenda	cultural and religious alignment with national priorities
	expectations towards the Uzbek government	creating a an enabling environment for Islamic finance and investment, ensuring effective utilization of IsDB funds for priority projects	implementing reforms that enhance transparency and accountability, strenghteting investment and improving the business environment
	guarantee provider	MIGA	*Kafalah* (Shari'a compliant nature) - SME Financing Guarantee Program
	insurance	Islamic Insurance (*Takaful*), Apex Insurance = the only Takaful operator in UZB (2019)	WBG's Individual Country Insurace Requirements Matrix

Source: Own elaboration based on data from the worldbank.org and isdb.org.

The IsDB's adherence to Sharia-compliant financing has facilitated the execution of projects aligned with the country's cultural and religious values, thus promoting inclusive development. The IsDB's involvement is rooted in Islamic finance principles, encompassing Islamic finance, infrastructure development, SMEs, education, and healthcare, and often facilitated through the ICD. IsDB's value-added proposition lies in its expertise in Islamic finance, providing tailored financial solutions that resonate with Uzbekistan's religious and cultural values. The Uzbek government has not yet created an enabling environment for Islamic finance, which may pose a risk to the degree of the longterm IsDB-Uzbekistan cooperation. Meanwhile, the WBG's extensive expertise and broad range of financial products have supported Uzbekistan in undertaking large-scale infrastructure projects and economic reforms.

The WBG employs conventional financial instruments, providing loans and grants across a wide array of sectors, thereby addressing complex development challenges with its extensive global expertise. The WBG, in particular the IBRD, primarily focuses on sustainability-oriented projects, offers a global experience and reach. Unlike the IsDB, the WBG does not require Uzbekistan to establish a new legal framework but focuses on enhancing the existing system through reforms aimed at increasing transparency and accountability.

While the WBG prioritizes long-term sustainability and comprehensive development, the IsDB focuses on sectors that align with Islamic values, creating a complex synergy between financial competence and cultural relevance in its engagement with Uzbekistan.

Conclusion

Since the Uzbek independence, despite different styles, both the IsDB and the WBG have significantly contributed to the country´s development. The overall collaboration has had various motives with a distinctly pragmatic Uzbek government´s approach.

The IsDB places a strong emphasis on financial inclusion, social equity, and the broad acceptance of diverse financing options among local stakeholders. Its approach is characterized by a localized strategy that focuses on working directly with Uzbek beneficiaries, tailoring funding packages to meet the specific needs of the country and its clan-based communities. Additionally, the IsDB's capital resources have been on the rise, further enhancing its capacity to support development initiatives. Conversely, the WBG offers more predictable and stable funding streams, enabling it to select the most suitable financing options for various projects. Its operations are marked by a focus on sustainability, transparency, and accountability within existing legal frameworks.

The large, conservative Muslim population in Uzbekistan remains a significant factor supporting the IsDB’s strong presence in the country. However, historical trends indicate that a predominantly Muslim populace alone does not guarantee the growth of the Islamic finance sector. The Uzbek government has recognized the need to remove legal obstacles and barriers to Islamic finance, but progress in this area has been slow.

Together, these institutions have played a pivotal role in Uzbekistan's development trajectory, demonstrating that different approaches and policies can complement each other in achieving common development goals. The development journey of Uzbekistan highlights that the contributions of the IsDB and the WBG are complementary rather than competitive. As a middle-income country, Uzbekistan stands to benefit from the dual engagement of both institutions to ensure that systematic challenges (governance, cotton industry, water crisis, etc.) and are addressed more effectively, as well as to achieve sustainable development across the country.

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SOLAR POWER GENERATION POTENTIAL OF UKRAINE UNDER WARTIME CONDITIONS

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The article is aimed at comprehensive analysis of global development trends of electricity generation in scope of renewables as well as solar power in particular taking into account overall wartime context and uncertainty framework. In Ukraine solar sector has already undergone an irreversible transformation both in terms of new facility placement and main goals of the generation segments. Following sustainability directive and net-zero imperatives global market shifts are dedicated to stabilize instability in power generation and consumption because of war damage risks. Moreover, solar power in this scope is undoubtedly shown to cover the major share of electricity production together with the nuclear segment. However, many countries are already transforming their energy markets in order to decrease the share of both nuclear and gas dependence for clean and renewable alternatives. Energy efficiency and security are becoming key prerequisites of geopolitical sustainability leaving alone the underlying green initiatives as well as socio-ecological commitments.

Key words: decarbonization, energy market, renewable energy, solar power, sustainable development.
JEL: F29, Q01, Q42, Q43.

Introduction

The post-pandemic world has drastically altered the scope of global economy. In the recent decades there has been an obvious trend to reduce or even nullify traditional energy sources and switch to alternative ones all around the world. Socially responsible business solutions with broad understanding of the complicated importance of preserving the environment are aimed to minimize the negative impact of production activities on the environment.

Nowadays thousands of both international and domestic companies are taking decisive steps towards greening their production approaches. One of the pre-dominant trends to mention here is the overwhelming transition to the generation and further use of alternative energy. Moreover, Ukraine has also joined the global process of complex transformation of the electricity sector, annually increasing its renewable energy capacity. In particular, solar energy has become extremely popular in Ukraine in recent years due to significant opportunities for the sectoral development.

Geopolitical risks further exacerbated the real consequences of irreversible shifts and revealed a plenty of required measured to be taken for future normality. Wartime instability has already destroyed the immense potential of green generation in Ukraine. Despite the fact that huge areas were completely withdrawn from the energy map, tremendous emphasis of both national electricity producers and global experts is still placed on renewal strategy in order to stick to sustainability initiatives.

Regardless of the current challenges associated with hostilities, key opinion leaders in energy generation sphere outline that solar power remains a strategically important direction as for the comprehensive development of renewable energy in Ukraine. Nowadays solar power plants have a portfolio of about 1,400 generation facilities of various production capacities. However, the development of generation in regions previously promising for the installation of industrial SPPs has now been put on hold due to the wartime circumstances and those risks geopolitically unforeseen as for investors.

Looking into this matter, we are to consider solar energy as a comprehensive part of a complex system. On 16 March 2022,[1] Ukraine joined the unified continental European electricity system ENTSO-E and successfully completed an emergency-case synchronization of its national power grids with the ENTSO-E in response to Russia's invasion of Ukraine. Until recently only a small part of the Ukrainian Power System (also referred to as *Burshtyn Island*) was synchronized with the European Network of Transmission System Operators for Electricity (ENTSO-E), while the rest of the network was synchronised with the power systems of Russia and Belarus.

Preparation for the synchronization of the entire Ukrainian Power System with ENTSO-E started in 2017 after the Ukrainian power transmission system operator Ukrenergo signed the agreement on the interconnection of the power system of Ukraine to the Continental Europe power system of the European Network of Transmission System Operators for Electricity (ENTSO-E). At the end of 2023, ENTSO-E confirmed that the Ukrainian TSO Ukrenergo had achieved compliance with all requirements for permanent synchronization. Ukrenergo also became a full member of ENTSO-E on 1 January 2024. In the coming years, the close cooperation with Moldelectrica will continue to achieve the same compliance with the European Union operational framework. The EU continues to provide wide-ranging support to Ukraine in the energy sector. Taking into account the declared and accepted direction on sustainability and global compliance, without the stable operation of solar power market effective functioning of the Ukrainian economy is also impossible in scope of collaboration.

Moreover, it is critically important to analyze the market as Ukraine continues receiving various funds in order to rebuild some of the tremendously destroyed generation facilities. The given funds, for instance from Germany, will be used to purchase equipment for energy-efficient modernization, automation and reconstruction of Ukrenergo substations. Owing to the support of *KfW Bank* since the beginning of Russia's full-scale invasion, Ukrenergo has received more than 177 million euros ($191 million) in credit and grant funds for the restoration and development of Ukraine's electricity transmission network.[2] This is especially important for ensuring the energy security of the state in the global perspective as well as the synchronous operation of the unified energy system of Ukraine with the European network of transmission system operators for electricity.

Solar Power Plants in Ukraine: main features and key updates

Solar power sector is considered to be relatively new industry as for Ukraine. Solar energy uses solar panels to convert solar energy into electrical energy. Solar panels contain photovoltaic cells that are able to capture photons of light and convert them into electric current. This process occurs with the help of the so-called photoelectric effect. Solar panels are most often installed on the roofs of buildings on landfills for the production of solar energy or on special solar farms. One of the advantages of solar energy is that it is a low-carbon and fairly sustainable source of energy, since the sun is a permanent resource.

Going deep into the roots, the first solar power station in Ukraine was built during the Soviet times on the territory of Crimea. At the time of launch its power was equal to 5 MW. Now this seems like a small figure, but at that time it was 25% of the total capacity of solar power plants in the world. The list of such successful projects is long enough to take this industry into global scope. The indicators of individual stations compiled at the beginning of 2010 were small. On the other hand, in total they gave considerable power. This fact determined the main vector of development of this industry in Ukraine. It is worth mentioning that during

[1] EUROPEAN NETWORK OF TRANSMISSION SYSTEM OPERATORS FOR ELECTRICITY 2024.
[2] THE NEW VOICE OF UKRAINE 2024.

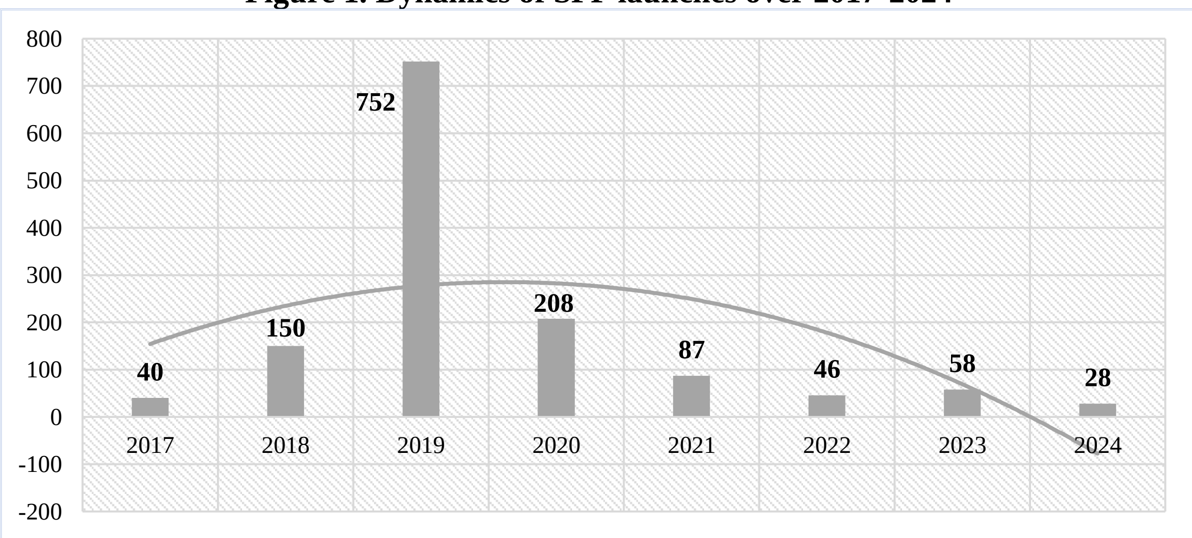
the period from 2014 (the year of the beginning of ATO – Anti-Terrorist Operation) to 2017, solar energy in Ukraine was developed within the private farms with more than 52 million hryvnias were in this sector. On average, the individual capacity of such mini-station was equal to 30 KW with the total capacity of 50 MW, which is equivalent to average industrial solar plant.

Simultaneously, the pace of its development is rather high, compared to other sectors of the domestic economy. According to the results of 2021,[3] solar energy accounted for more than 5% of total electricity production in Ukraine. The wide-spread scope of this sectoral changes is predetermined by mostly geographical aspects that are particularly important for this type of power generation.

The whole territory of Ukraine is beneficial for the solar power plant set-up. At the same time, the most favorable conditions are in place in the southern regions of Ukraine (Odesa, Mykolaiv, Kherson, Zaporizhzhya and part of Donetsk region, Autonomous Republic of Crimea), where more than 60% of industrial SPPs had been concentrated before the war started. As of the end of 2021, the total capacity of solar power plants was 6,320 MW (excluding those located in the temporarily occupied territories).

Before the beginning of military escalation following the official data, Ukraine had one of the highest performance indicators of solar energy development progress in Europe. However, the invasion of the aggressor caused tremendous losses to the industrial capacities. Two-thirds of solar power plants in Ukraine are located in the south of the state, where active military hostilities are taking place today. According to various expert estimates, more than 30% of solar power plants already situated in the occupied territories, which constitutes approximately 1120-1500 MW of all the installed capacity, were completely destroyed. In addition to this dramatic situation, more than 25% of non-industrial (private) HPPs were destroyed.

Figure 1. Dynamics of SPP launches over 2017-2024



Source: own compilation based on *National Energy and Utilities Regulatory Commission* data.

According to the data provided by National Energy and Utilities Regulatory Commission (NEURC) as of April 24, 2024, there are 1369 solar power plants owned by 931 licensees in Ukraine (Figure 1). However, the shown data is quite controversial in terms of future market prospects. On the one hand, the overall situation demonstrates the presence of practical basis for solar generation due to the potential existing in 2019 with the total number of 752 SPP launched. On the other hand, the polynomial trend that was built taking into account

[3] UKRAINIAN ENERGY EXCHANGE 2024.

the official data obviously revealed a downward slide. Figure 1 exposed the fact that the peak of the solar power generation development dramatically fell in 2019 as well as in subsequent years, as since then the number of issued licenses gradually decreased.

In general, about half of all solar power plants are located in 6 regions: Ivano-Frankivsk (142), Dnipropetrovsk (134), Vinnytsia (122), Khmelnytsky and Kyiv (107 stations each), Mykolaiv (92). The least number is revealed as for Luhansk, Donetsk (2 stations each), Sumy (5) and Poltava (7).[4] It is worth highlighting that some solar power plants are located in the temporarily occupied territories of Kherson, Zaporizhzhia, Donetsk and Luhansk regions. Such power plants are excluded from the Ukrainian generation system due to obvious technical reasons. Currently, about 60% of all the given licenses for the electricity production at SPPs have been obtained for the facilities built on the territory of Ivano-Frankivsk, Kirovohrad, Lviv and Kyiv regions. Moreover, in April 2024 three new solar power plants started functioning in the Kirovohrad, Odesa and Cherkasy regions.

Starting from February 24, 2022, Ukrainian energy facilities are under constant missile and drone attacks and have withstood hundreds of Russian strikes. At least 13% of industrial solar power plants have been destroyed or damaged.

According to Solar Energy Association of Ukraine estimates,[5] there are now 62 industrial SPPs with a total installed capacity of more than 950 MW in the occupied territories. And this is without taking into account a significant number of small domestic HPPs with a capacity of up to 30 kW. Moreover, about 5,900 MW of industrial SPPs and more than 1,200 MW of domestic small SPPs are currently located on the territory of Ukraine free from the aggressor which also suffer significant losses as a result of hostilities.

In general, solar power plants are shown to be the most popular type of generation compared to wind, hydro and bioelectric alternatives due to its high value in the overall segment – up to 75% of all RES facilities. Ukrainian electricity producers thoroughly use the *green tariff* support mechanism provided by the state, as 97% of power plants have applied this specific type of industrial tariff.

Analyzing the overall situation around the development of solar power generation industry, several key points are to be outlined. First of all, the Ukrainian government has been supportive of renewable energy projects, offering feed-in tariffs to encourage investments. Secondly, various international companies and financial institutions have already invested in Ukraine's solar energy sector, recognizing its potential. Third crucial point – long-lasting environmental impact. The expansion of solar power helps reduce greenhouse gas emissions and dependence on coal and natural gas.

There are also some challenges as for the consistent industrial progress. To start with – political crisis. Ongoing conflicts and economic challenges can affect the investment climate and development of infrastructure. Moreover, ensuring the existing power grid can handle the integration of intermittent solar energy is crucial for stability and efficiency.

Overall, Ukraine plans to continue expanding its solar power capacity with various projects in the pipeline. The adoption of advanced solar technologies and energy storage solutions to enhance efficiency and reliability.

Solar power generation in Ukraine – development prospects

Global development prospects are quite promising. In 2022, electricity generation from solar and wind power plants exceeded gas generation in the European Union for the first time.[6] Wind and solar provided a record fifth of EU electricity (22%) in 2022, overtaking gas (20%) first ever time and remaining ahead of coal (16%). In June 2023, the European Union's clean

[4] MINISTRY OF ENERGY OF UKRAINE 2024.
[5] SOLAR ENERGY ASSOCIATION OF UKRAINE 2024.
[6] EMBER (2024): *Global Electricity Review 2024.*

energy transition was marked by solar panels producing more electricity than all coal-fired power stations combined – and this was before the summer sun boosted output.[7]

Taking into account key world trends under the extrapolation analysis some key features are to be described. First of all, electricity production based on solar energy in Europe is considered to increase by approximately 50 TWh in 2024.[8] Production at wind power stations will inevitably rise by 38 TWh, nuclear progress will constitute the amount of 20 TWh, hydropower stations – by 5 TWh. Meanwhile, electricity generation from traditional fossil fuels and other sources will decrease by 60 TWh.

Thus, for the first time throughout the history, solar generation will be the energy market leader in terms of production growth in the entire industrial sector. This will be predominantly facilitated by large volumes of newly installed capacities within the region and primarily in Germany, which in 2023 became a net importer of electricity. The total volume of electricity production in Europe will increase to 2.74 thousand TWh in 2024 from 2.687 thousand TWh a year earlier.[9]

While solar energy was an effective and quick solution up to the 2022 energy crisis caused by Russia's actions to cut natural gas supplies, its limitation is that the technology works most effectively during the sunny months, when demand for electricity is typically the lowest. Energy storage systems in batteries or green hydrogen usage boost are not sufficiently developed to keep lights on at night or heat rooms in winter. Unlike energy based on wind, hydro or geothermal energy, solar energy has the important advantage that it can be implemented quickly. All it takes is an incentive for homeowners or real estate companies to turn rooftops into mini-energy farms. However, power grids were designed around large generators that could work in cooperation with grid operators to maintain grid stability. In the case of a more distributed system, control becomes more difficult and will be a major challenge in the summer.

Even with record solar and wind output this year pushing coal and gas plants into the background at an impressive rate, the European Union still has a long way to go to reach its goal of zero emissions by 2050. Germany is under even more pressure as Europe's biggest energy market has ambitions to decarbonize its power system by 2035. Achieving this goal requires not only a significant expansion of clean energy usage, but also the implementation of changes that will ensure a better interaction between consumption and production.

On the other hand, the extensive development of solar energy in Ukraine in the upcoming years is under threat due to the comprehensive and severe invasion of the aggressor. Therefore, it is extremely important to develop a high-end strategy for the full-end recovery of the renewable industry at the state level. In general, in order to develop the solar energy potential comparable to the pre-war rate, there are several efficient measures that can be taken in order to reach the abovementioned goals:

- allocate financial funds from various international donors to enable infrastructure restoration;
- encourage long-term investments for the construction of new solar power plants;
- provide beneficial conditions for the companies eager to contribute to the effective market functioning.

Taking into account key industrial peculiarities as well as modern geopolitical challenges, a fair and transparent mechanism for the electricity sale already operates in Ukraine. Owing to the electronic auctions taking place in the trading system of the Ukrainian Energy Exchange, producers and suppliers can sell electricity energy under clear terms and market prices, which are formed on the basis of real demand and supply.

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[7] BLOOMBERG, 2023.
[8] RYSTAD ENERGY INSTITUTE 2024.
[9] RYSTAD ENERGY INSTITUTE 2024.

Despite the aggression of the Russian Federation and the temporarily occupied territories with no access, renewable energy in Ukraine is predicted to enhance its progress pace. First of all, it is supposed to be a global trend. Renewable energy is actively developing in Europe, America and Asia. Secondly, the construction of solar power plants and further launch is geographically possible on the entire territory of Ukraine. Thirdly, solar energy along with wind energy constitute quite significant support of the energy system and reduce the need in fossil resources.

According to the Energy Strategy of Ukraine, which was presented at a special conference in London at the beginning of the summer of 2023, it is proposed to increase the capacity of solar generation to 94 GW by 2050. At the same time, the investment opportunities of the sector amount to 62 billion. Of course, such indicators look bold, but real, if efforts are thoroughly applied in order to develop the solar energy generation potential in Ukraine. Moreover, there are all practical possibilities in place, as evidenced by the pre-war indicators.

One more crucial point of investment attractiveness of solar power industry appears when it comes to the level of household users from the global prospects. One of the driving forces behind the development of solar energy was the advertised popularity of solar panels among the households. This was facilitated by the introduction of the *green tariff*. The last one presupposes that the initial owner of the solar station enters a special agreement with the state authorities. According to such an agreement, an individual owner or legal entity is offered participation in the *Guaranteed Buyer* program. In fact, the consumer sells the surplus of generated solar energy to the state. Moreover, current models of panels can produce such energy even on cloudy days.

Following the recent energy forecasts, *green tariff* in 2030 should be equal to an ordinary one, so there is no point in carrying it out. However, generating solar energy at the expense of own production, both the company and the private person gain more benefits, because the purchase of such panel itself is the only sort of investment flow within this system. Therefore, the owner of solar panels may either have no need to consume electricity from the centralized network at all (and not pay for it) or consume it in minimal amount. This opportunity enables cost reduction. In general, costs are determined by the manufacturer, model, generation, technical characteristics, functionality, so the options vary.

All things considered, new laws aimed at green transformation as well as the development of a national energy and climate plan testify to Ukraine’s serious commitment within the framework of the European Community. These steps indicate an intention to achieve carbon neutrality by 2050 and address energy and climate challenges. An important aspect is the integration of market fundamentals to stimulate the development of renewable energy sources. Decentralization of generation opens up new opportunities for consumers, allowing them to actively participate in shaping the supply and demand balance. This contributes not only to reducing costs for consumers, but also to active influence on energy markets. In general, the latest changes in the field of energy are characterized by increased transparency, expansion of opportunities for the development of RES and establishment of the foundations for a sustainable energy system in Ukraine.

Moreover, in the face of increased attacks on the energy infrastructure in Ukraine, it is necessary to build distributed highly maneuverable generating capacity and battery electricity storage facilities to ensure flexibility and stability of the energy system as well as investments in distribution networks. This emphasizes the role of the state as a guarantor of creating favorable conditions for potential investors and supporting initiatives that strengthen the state energy security.

Conclusion

Wartime reality brought a new vision on global as well as domestic economic future. Despite being either damaged or occupied, solar energy sector is still on its way of development in Ukraine. Leaving behind the historical background of strong industrial dominance and fossil raw material privilege, some countries usually have to import renewable energy and by means of this solve a number of crucial issues. First of all, it is all about improving the ecological stability in long-term prospects, as the carbon emissions have already led to dramatic climate change all around the world, and this process is considered to be slowed down in the nearest future. Renewables, namely solar energy, will play one of the most essential roles in this scope. In turn, the geopolitical component is quite crucial in terms of enabling this development stimulation. If one country decides to import raw materials, it makes the national security position rather fragile.

Moreover, technological advancement is crucial in terms of future progress. Digitization and modernization of public administration in the energy sector are emerging as fundamental elements of this transformation. Investments in digital technologies and cyber security not only strengthen the energy system and protect it from external threats, but also optimize its operation, ensuring effective resource management and transparent monitoring. It is necessary to clearly establish the working mechanisms of the information and analytical support system, which will be responsible for monitoring and analyzing the effectiveness of the implementation of international policies and state measures.

Overall, Ukraine is facing unprecedented challenges in the field of energy security due to Russian aggression. The loss of control over significant industrial assets and constant attacks on energy infrastructure threaten not only the economic recovery, but also the state national security. In these conditions, reindustrialization based on new technologies and renewable energy sources becomes critical, since a technologically equipped industry is the foundation of a sustainable economy and defense capability. Investing in the European future will help achieve energy independence and competitiveness in the EU internal market. This requires the development and implementation of a reindustrialization strategy focused on attracting investment in production, modernizing the industrial sector, and creating innovative industries, which can be the key to restoring and strengthening the economy during and after the war.

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THE DRIVING FORCES OF AFRICAN COLONIZATION[1]

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Abstract: European colonization of Africa was an era driven by economic interests and imperial ambitions. European nations, aiming to extend their territories and exploit valuable resources, established colonial domination throughout the African continent. The primary objective of this article, which is the first part of larger research project, is to examine the existing literature regarding the main motives behind the European colonization of Africa. To achieve this goal, we use standard methods of induction, deduction, and synthesis. We concluced that European colonization of Africa was primarily motivated by economic interests, which led to the creation of dependence on European markets. Profits were often repatriated by the colonizer, deepening economic disparities and hindering local development. Colonial rule weakened traditional power structures, created artificial boundaries that separated ethnic groups and caused internal tensions. These historical factors continue to influence political stability in African countries today.
Key words: European colonization, African continent, colonizing powers
JEL: N47, N97, N43

Introduction

Colonialism refers to the direct and comprehensive control exerted by one nation over another, primarily through the foreign nation's state authority. The primary aim of colonialism is to establish political supremacy, followed by enabling the exploitation of the colonized region. The commonly shared perspective is that every manifestation of colonialism falls within the broader category of imperialism, but not every expression of imperialism meets the criteria to be considered colonialism.[2] The primary objective of this article, which is the first part of larger research project, is to examine the existing literature regarding the main motives behind the European colonization of Africa. To fulfill the paper's objective, we utilize standard methods of induction, deduction, and synthesis.

When discussing colonialism of Africa, we refer to a period spanning from the 1800s to the 1960s. The European colonization of Africa was driven by factors, among which the emergence of the industrial revolution stands out significantly. The beginning of this period prompted changes in both the socio-economic transformation and technological capacities.

The industrial revolution led to a boost in production and the industry developed faster than agriculture. This created challenges to meet the rising demand for raw materials required by industries and European powers needed to search for additional sources of raw materials outside their own territories. Colonizers needed raw materials from Africa for their industries, but African economies couldn't supply them. Colonial powers took direct control of African territories to control their economic activities and political administration to produce the food needed for their industrial workers in their home countries.[3]

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[1] This paper is part of the project I-24-106-00 ‘Changes in the positions of global actors in economic relations with Africa‘.
[2] LEGAL INFORMATION INSTITUTE: Colonialism.
[3] OCHENI, S. – NWANKWO, B. (2012): Analysis of Colonialism and Its Impact in Africa.

1 Colonial Economic Systems and Their Impact on African Development

The European powers established capitalism as the dominant economic system. Under capitalism, individuals are empowered to pursue personal gains and engage in competition, which should lead to improved social welfare. This assumes that economic growth is driven by the profits and value created by a diverse range of small businesses. However, capitalism does not take into account the various characteristics specific to these societies. Challenges such as the lack of sustained, long-term growth in production or trade, together with inadequate technology and capital accumulation, hinder their development, but this was not taken into account in the specificities of African countries. The rapid progress of Europe in the 19th century and the rise of economic and political power in some countries prompted a new approach to Africa focused on investment and trade in goods.[4]

As the abolition of slavery in Europe during the early to mid-nineteenth century led to a decline in the slave trade, Africa's exploitation transferred to providing minerals and raw materials needed for Western industrialization. At the Berlin Conference in 1884-85, the European powers divided Africa and thus resources such as gold, silver, rubber, and palm oil. European leaders divided the continent without accurate knowledge of its geography, resulting in artificial borders that persist today. These borders often divide ethnic groups causing ongoing tensions.

Europeans brought two institutions to Africa: plantation agriculture and private property rights. Process of plantation demanded larger land areas compared to the areas typically cultivated by the average African farmer. This led to an increased demand for labor. Private property rights replaced the traditional communal ownership systems, which means that colonizers separated the land and established property rights. Railroads in Africa were primarily constructed not to support local commerce and industrialization, but rather to connect areas abundant in agriculture or minerals to ports, facilitating the transfer of Africa's resources to Europe and the United States. Mozambique and Ghana serve as examples.[5]

The private sector focused on exporting resources, while the public sector was interested in investments in education, health, and infrastructure. The whole infrastraction, from construction of roads and railways to transport goods to Europe, was seen as beneficial for Africa's development but in this case Europe's aim was to accelerate its own development, even if it came at the expense of others. Eventually, colonialism turned into an era of global trade, where commodities such as palm products, cocoa, rubber, and groundnuts attracted many European merchants and traders. African countries are often vulnerable in the global economy because of their dependence on two primary export commodities. This is a direct consequence of the colonial era, which favored the export of raw materials at the expense of the developing domestic industry. As a result, African economies are vulnerable to the ups and downs of the global market. This problem is compounded by the fact that a large number of African countries produce and export similar commodities reduce their ability to negotiate and secure favorable trade terms.[6]

2 Impact of Colonialism in Africa

The technological limitations observed in numerous modern African nations, which has been responsible for their underdevelopment, can be attributed to the inadequate educational system established during colonial era. Colonial education system primarily focused on training individuals for administrative roles such as clerks, interpreters, inspectors, and artisans. The prioritization of colonial education encouraged Africans to forsake their traditional education system in favour of a literacy-focused education. Educational system that lacks strong

[4] HRITULEAC, A. (2011): The Effects of Colonialism on African Economic Development, p. 17.
[5] MICHALOPOULOS, S. – PAPAIOANNOU, E. (2021): European Colonialism in Africa Is Alive.
[6] HRITULEAC, A. (2011): The Effects of Colonialism on African Economic Development, p. 16.

connections to a society's culture and environment will struggle to facilitate significant technological progress.

Africans were selling their raw materials at low prices, while the manufactured goods were sold at high prices. This leaded to widespread poverty. Colonial powers enforced a focus on producing goods for export, neglecting the production of goods needed by the local population because of that Africans did not grow essential goods needed by their communities. This led to a lack of food and rising food prices. Africans' raw materials were exported overseas rather than being used by local industries. It created a disconnection between agriculture and industry in Africa. As a result, the African economy couldn't advance because the extra profit taken by colonialists wasn't reinvested or circulated within the economy.

The present circumstance of Africans importing their food is a direct result of the lasting effects of colonialism. The colonialists decided to send the profits taken from the African economy overseas to support the development of their own domestic economy, instead of reinvesting them within Africa.Another significant effect of colonialism in Africa was the development and establishment of social classes. The motives behind colonial acquisition by colonialists included the requirement for raw materials, need to search new markets to sell surplus manufactured goods and the necessity to supply food for the expanding urban population.[7]

In Tanganyika, colonial authorities changed their focus from food production to growing labor-intensive cash crops such as cotton. They promoted growing minor crops like peanuts and sesame while decreasing the cultivation of essential foods like millet and sorghum. This created food shortages, causing malnutrition and famine. Some believe that European industrialization impacted colonial economies to make goods for industrial markets and this indicates that colonial economic strategies were not guided by real demand.[8]

Areas of uninhabited land were secured more easily than forcing the indigenous population into hard working conditions against their will. European settlers relied on the institutional support of colonial authorities because the success of European settlement depended on how the colonial government solved the interest's conflict between African smallholders and European planters. Many European farmers in Central and East Africa opted for agricultural pursuits in higher altitudes like the Rift Valley region because of the more favorable climate. However, this preference for agriculture in ecologically advantageous conditions wasn't universal. For instance, European settler farming was nearly nonexistent in Uganda despite its favorable ecological conditions.[9]

Among the key characteristics of territories targeted by colonial powers were a low standard of living for the local population, an economy controlled and subordinated to European monopolistic interests, and primarily focused on satisfying the needs of the colonial powers rather than those of the indigenous inhabitants. This colonial approach fostered a one-sided economic development geared exclusively towards securing and exporting resources for the benefit of the colonial powers, neglecting the genuine needs and development of the local population. The most influential capitalist nations colonized numerous dependent territories and colonies spread across the globe. These powers included countries such as Great Britain, France, the Netherlands, Portugal, and Spain.[10]

[7] OCHENI, S. – NWANKWO, B. (2012): Analysis of Colonialism and Its Impact in Africa, pp. 51-53.
[8] SETTLES, J. (1996): The Impact of Colonialism on African Economic Development, p. 8.
[9] SETTLES, J. (1996): The Impact of Colonialism on African Economic Development, p. 10.
[10] GARETH, A. (2010): African Economic Development and Colonial Legacies.

2.1 Reevaluating Eurocentric Perspectives

Along with removing African philosophical and religious foundations, the colonizers enforced European systems, erased African identity and promoted Western ideologies. European scholars such as Hugh Trevor Roper trivialized African history and reinforced Eurocentric views. Figures such as Hegel and David Hume perpetuated the notion of African inferiority, portraying Africans as less intellectually and culturally developed than Europeans.

Max Weber supported this bias by attributing all major civilizational advances solely to Europe. Eurocentric perspectives persist today, as exemplified by Terrence Rangers' theory, which downplays African cultural achievements as European inventions. This Eurocentric mindset affects various aspects of life in Africa, including consumer behavior, intellectual discourse, and development strategies. African intellectuals, influenced by Eurocentric education, often reject their own cultural heritage, thereby reinforcing European dominance.

As a result, African development was often associated with Eurocentric ideals and relied on European expertise and institutions. However, this approach raises concerns about environmental sustainability and the persistence of global inequalities. In response, Afrocentrism offers an alternative that advocates the reclamation of African identity and the adoption of indigenous development models.[11]

Africa still mainly provides raw materials, while the West sells finished products, devaluing African currencies. Western countries pressured African states to open up their economies and ensure that they would buy Western goods. This reliance on the West comes from the belief that only copying Western ways can lead to development. However, history shows that Africa has long been part of the building of the West, mainly through the slave trade. Colonialism also exploited African resources for European profit, leading to less development in Africa. Walter Rodney's ideas show how Europe robbed Africa of its wealth and how this prevented Africa from reaching its full potential.[12] In no previous era was there such a deliberate and organized pursuit of maximum profit from production as was done by the capitalists. Their drive to accumulate capital led them to engage in scientific principles and use machinery to increase productivity and profitability. Capitalism played a significant role in shaping the political environment and underpinned what we understand as Western democracy, through the promotion of parliamentary systems, constitutions and freedom of the press, which were key to the breakdown of feudalism.While capitalists contributed to certain aspects of development by promoting freedom of the press, constitutional frameworks and parliamentary institutions, their achievements were built on the hardships endured by workers. This suffering, which represents a significant part of society, underlines how capitalism currently prevents further social progress. The author concludes that while feudal and slave relations may appear archaic in contemporary assessment, nowadays capitalism occupies a similar role as its social and class structures are similarly antiquated.[13]

3 Differences Among Colonizing Powers

Differences emerged among European colonizers. The British expected each colony to repay its debts, whereas the Germans and French invested directly in their colonial holdings. Colonies were governed by new rulers who imposed import duties and mandated that firms remit taxes to Europe, thereby ensuring colonial administrators remained under European control. Export duties were levied to facilitate the transport of goods, with individual colonial

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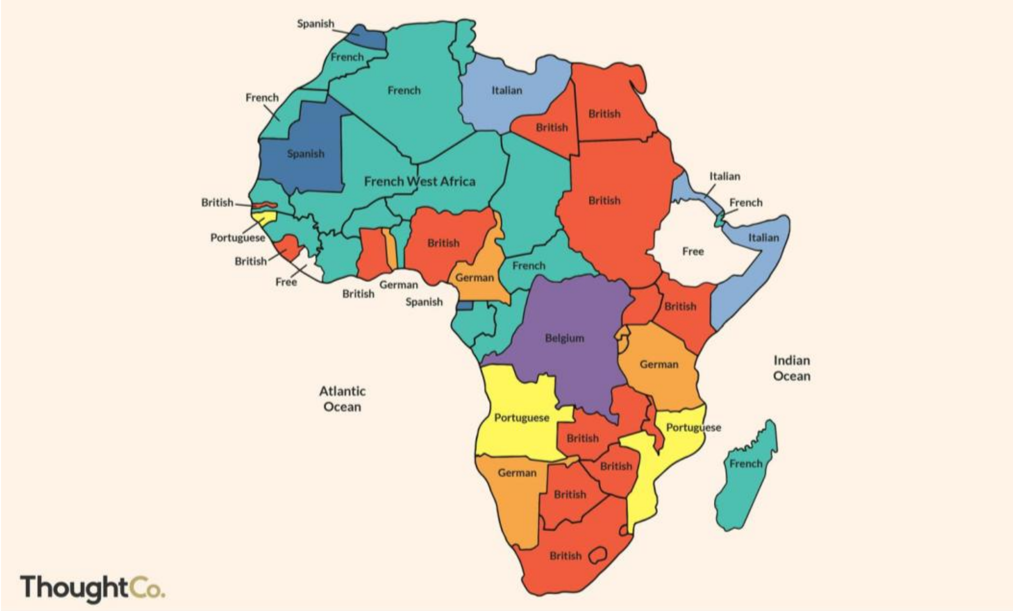
[11] CHUKWUOKOLO CHIDOZIE, J. (2009): Afrocentrism or Eurocentrism: The Dilemma of African Development, pp. 28-31.

[12] AKINRINDE, O. (2019): Tge Eurocentris World History: Deconstructing the Constructed African History in the Age of Globalization, pp. 4-6.

[13] RODNEY, W. (2011): How Europe Underdeveloped Africa, p. 10.

policies aimed at attracting European enterprises and promoting the export of agricultural produce by local farmers.[14]

Figure 1: African Colonization After the Berlin Conference (1884-1885)



Source: ThoughtCo.

The Berlin Conference highlighted and confirmed Europeans' dehumanizing view of Africans, treating them as commodities rather than people. This Eurocentric belief asserted that Africa was sparsely populated, its inhabitants were nomadic without political sovereignty or a concept of private property, and lacked rationality. As a result of the Berlin decisions, Africans found themselves confined within European-drawn borders, limiting their political agency. Yet, within these constraints, they mobilized pan-Africanism and nationalism to challenge the enduring legacies of the slave trade, imperialism, and colonialism.[15]

The British and the French looked for African allies to help them run their colonies, using different methods to do so. The British used a system of indirect rule, where they let local chiefs govern their own areas on behalf of the British colonial government. This way, the British could stay in charge while making use of the existing power structures within African communities. On the other hand, the French followed a policy of assimilation. They gave certain Africans special status, expecting them to adopt French ways and stay loyal to France. Those who got this status were supposed to support what the French were doing in their colonies. Even though some African leaders worked with the colonial powers, many of them used force to establish and keep their authority. They did this to make sure their rule was followed, maintain order, and enforce the laws set by the colonial rulers.[16]

Most of the colonial period in British Africa was characterized by a policy of free trade. On the other hand, France tried to protect its colonies and supported them to serve the interests of the metropolis. One example was the preferential treatment of colonial exports to France and exemption from taxes. This preference was also visible in the fact that some French ships were

[14] HRITULEAC, A. (2011): The Effects of Colonialism on African Economic Development, p. 19.
[15] NDLOVU-GATSHENI, S. (2013): Eurocentrism, Coloniality and the Myths of Decolonisation of Africa, p. 36.
[16] HRITULEAC, A. (2011): The Effects of Colonialism on African Economic Development, p. 24.

not required to pay certain dues in selected colonial ports. Colonies resorted to an open door policy only when international treaties forced them to do so.[17]

Both France and Britain in Africa were mainly driven by economic interests. They aimed for the colonial administration to financially support itself, avoiding heavy reliance on settling colonies. Instead, they had a few European officials managing the system while indigenous people, trained in European ways, took on lower administrative roles. This model is exemplified by Nigeria, where the ratio was one British administrator per 100,000 Africans, supported by a predominantly African colonial army.

African chiefs were restricted to leading only the lowest levels of the administrative structure and even then had to follow French directives to maintain their positions. This centralization at the local level resulted in agents of the colonial state replacing traditional leaders and bureaucratic agencies of the colonial state replacing traditional institutions. Colonial subjects were directly linked to the colonial state through measures such as taxation, land regulations, and compulsory labor contributions for public projects. Their interactions with the central state were no longer mediated by traditional local leaders.

In contrast to the French method, British colonial administration was characterized by a lesser degree of centralization from the mother country. The British administration leaned heavily on indigenous local elites to manage the day-to-day affairs within the colony. Rather than populating their African territories with numerous British settlers, the British authorities chose to retain existing indigenous local elites and incentivize or compel them to serve as representatives of British control.[18]

Conclusion

The European colonization of Africa was mainly driven by economic motives, particularly the need for raw materials to fuel their industries during the Industrial Revolution. This led to the imposition of colonial structures that disrupted traditional socio-economic systems and created dependencies on European markets. The profits extracted from Africa were often repatriated to the colonizers' domestic economies, exacerbating economic disparities and inhibiting local development.

Another significant factor was the weakening of traditional power structures and national boundaries created by colonial rulers. These artificially drawn borders often separated ethnic groups and caused internal tensions.

When we look at the effects of these colonial systems and politics on political stability and democracy in African nations today, it's clear that these historical factors have deeply influenced the continent's current situation. Colonial structures and political systems were often designed to maximize the benefits of colonial powers, disregarding the needs and sentiments of local populations. The money made from Africa was often sent back to Europe and this led to the creation of hierarchical and centralized political regimes that were often resistant to democratic processes and civil rights.

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[17] HRITULEAC, A. (2011): The Effects of Colonialism on African Economic Development, p. 20.
[18] TADEI, F.: Colonial Trade and Extractive Institutions in British and French Africa, pp. 477-479.

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3. HRITULEAC, A. (2011): The Effects of Colonialism on African Economic Development. [online]. [Cited 10.04.2024]. Available online: https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=adf6c9bea84a6a8137cd85a20f5a664ef7a19a27
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THE SOUTHERN CORRIDOR OF THE BRI

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Abstract: The aim of this paper is to present the Southern Corridor of the Iron Silk Road (ISR) within the Belt and Road Initiative (BRI). It commences with an introduction to the BRI and ISR in general, as well as the other two corridors of the ISR. The focus then shifts to an overview of the Southern Corridor, the obstacles it faces in its potential development and the opportunities it presents. Following on from that, two major projects will be analyzed more closely to illustrate the substance of this corridor. The principal conclusion is that the Corridor is becoming more relevant, but significant hurdles remain to be overcome. The main methods used were the study and analysis of internet sources, mainly online portals of organizations and media pertaining to rail transport, international politics and economic development.
Keywords: Belt and Road Initiative, Central Asia, China, rail transport
JEL: F15, R40

Introduction

The Belt and Road Initiative (BRI), formerly known as One Belt One Road, is the most visible sign of China's rapid rise as a new economic superpower over the past decades. This initiative is meant to serve as an umbrella for developmental projects throughout Eurasia, and even further beyond. However, its original focus was much more local, being unveiled during a visit of Chinese president Xi Jinping in Astana, Kazakhstan in September 2013.[1] Back then, referred to simply as the New Silk Road, the name evoked the ancient Silk Road spreading between China and the Near East, which brought much prosperity to the Central Asian realms along the way. As such, the New Silk Road was expected to increase trade and investment flows between China and the post-Soviet republics in Central Asia, with the possibility of extending the initiative further into Asia and Europe.

As important aspect of these plans was the Chinese search for alternative supply routes for oil, natural gas and other commodities for which it had great demand due to its rapid economic growth. China was concerned that its regular maritime transport routes for energy commodities from the Middle East, from where it bought most of its oil and gas, were too vulnerable to being cut off by potential adversaries, notably the USA. Of special concern for the Chinese leadership were the Malacca Strait and the Strait of Hormuz, though which the majority of Chinese energy commodity imports passed in the form of tanker ships. The same worry took hold in the case of its trade in general, which also passes through choke points such as the various straits of Indonesia, the Suez Canal, or the Bab-el-Mandeb. An alternative overland route through Central Asia would decrease the reliance of China on these maritime routes (and on the maritime tanker trade), avoid the vulnerable choke points, and remove this vital trade from the easy reach of adversarial maritime powers.

The BRI is not a single route, however. It is divided into a sea-based component, the Maritime Silk Road, and a land-based component, the Silk Road Economic Belt (SREB). The latter is again subdivided into six corridors radiating outwards from China in different directions across Asia. To the North, there is the China–Mongolia–Russia Economic Corridor, connecting China to Europe via the mentioned countries, as well as the New Eurasian Land Bridge, which goes from China to Europe through Kazakhstan and Russia once again. Both of these corridors

[1] WU, J. – ZHANG, Y. (2013): Xi proposes a 'new Silk Road' with Central Asia.

continue to their destinations in Western Europe via Belarus and Poland. To the South, there are two further corridors, the Bangladesh–China–India–Myanmar Economic Corridor (BCIMEC), which aims to connect these four countries, and the China Indochina Peninsula Economic Corridor, which connects the remaining countries of Southeast Asia apart from Myanmar. And to the East, the two remaining corridors of the SREB are the bilateral China–Pakistan Economic Corridor (CPEC) and the China–Central Asia – South Asia Economic Corridor, connecting China with Europe though the post-Soviet countries of Central Asia, Iran, and Turkey, with a branch crossing the Caspian Sea and the Caucasus. Of the six SREB corridors, it is this last one which is most relevant to the topic being discussed in this paper, due to its importance in Chinese and other Asian countries' plans in railway development within the BRI.

One further important aspect of the BRI and its various sub-initiatives and corridors are their intentional vagueness – there are no official documents outlining which countries or routes are included in the specific projects or the initiative as a whole. This is seen by Western observers as intentional, as it enables China and its partners to tailor the BRI and its components, as well as the rhetoric around them, to the current situation on the ground. It also enables the parties to quietly ignore any project which has not met the goal or expectations set for it, while any successful or overachieving project can be included in the BRI on a case by case basis to make the initiative exude an aura of success – even if the project was not originally conceived as part of the BRI or its sub-initiatives. This will also be seen in the following text, in the example of the Istanbul-Tehran-Islamabad Railway.

The principal method that the future BRI was to achieve the goals mentioned above is by improving transportation connectivity in the countries involved, and thereby to reroute international trade through the region, as it was during the golden age of the Silk Road. One way of achieving this and updating the Silk Road for the modern era is by the building or reconstruction of railways and related infrastructure (stations, intermodal hubs, transloading facilities, etc.), which have since been grouped together under the name of the Iron Silk Road (ISR). This sub-initiative itself comprises three corridors: northern, middle and southern. The Northern Corridor connects China to Europe through Russia via routes traversing Manchuria, Mongolia or Kazakhstan. In this respect, it is the railroad component of the two aforementioned "northern" corridors of the SREB, the New Eurasian Land Bridge and the China–Mongolia–Russia Economic Corridor. This has long been the dominant corridor of the ISR and rail travel between both corners of Eurasia in general, thanks to previously available rail infrastructure in the form of the Trans-Siberian Railway, which could be utilized by the developers and clients of the ISR.[2] The Middle Corridor comprises several routes which start in Western China, then going through Kazakhstan to the Caspian Sea,[3] either to the port of Aktau or branching off southward to the Turkmen port of Turkmenbashi.[4] From these ports, the cargo must re loaded on a ferry to cross the Caspian Sea to the Azerbaijani port of Alyat near Baku,[5] from where it continues to through Georgia to Turkey and then on the Europe. As such, it comprises part of the New Eurasian Land Bridge and the China – Central Asia – South Asia Economic Corridor within the SREB. Finally, there is the Southern Corridor, which is much less formalized and complete than the Northern and Middle ones. While the original ancient Silk Road also connected the two corners of Eurasia via many routes, the principal route copied today's Southern Corridor, going through the oasis cities of Central Asia to Northern Iran and then either to the ports of the Levant or today's Turkey. By contrast today's Southern Corridor is more of a work in progress than a practical alternative to the other two. This ISR corridor

[2] KENDERDINE, T. – BUCSKY. P. (2020): Rail Freight Use on China's Iron Silk Road Underdelivers
[3] RAIL CARGO GROUP (2020): First Silk Road train from Turkey to China.
[4] TAVSAN, S. (2017): 'Iron silk road' threatens to sidetrack Russia.
[5] SEKHNIASHVILI, A. (2017): The Iron Silk Road's Centerpiece.

therefore copies the China – Central Asia – South Asia Economic Corridor of the SREB. The aim of the paper is therefore to introduce the potential Southern Corridor of the ISR, the hurdles it faces in becoming a fully-fledged corridor on par with the others, and two major examples of railways falling within this corridor. The main methods used were the study and analysis of internet sources, mainly online portals of organizations and media pertaining to rail transport, international politics and economic development. For the sake of completeness, it should be mentioned that there are other routes within the ISR which are independent of these three semi-formalized ISR corridors, such as railways under construction as part of the China–Pakistan Economic Corridor and the China Indochina Peninsula Economic Corridor.

1 Overview of the Southern Corridor

The Southern Corridor, like the Middle Corridor and certain routes within the Northern Corridor, also starts in Western China, moving into either Kazakhstan or Kyrgyzstan before converging in Uzbekistan and continuing through Turkmenistan, Iran and Turkey, from where it enters the EU. The precise length cannot be determined due to the many alternative possible routes, starting and ending points, as well as the incomplete character of this Corridor, but it averages at over 10 000 km. This would make it shorter than the dominant Northern corridor, with an estimated possibility of cutting down about 900 km on the distance and 8 days compared to the Northern option.[6] There are several reasons for the lack of development of this corridor compared to the Northern and Middle one, some of which are shared with the other corridors, others which are specific to the Southern one.

One important obstacle is fragmentation of the railway networks, which it has in common with the Middle Corridor. Whereas the Northern variant crosses relatively few border before it gets to Europe – the longest route from Manchuria can simply follow the Trans-Siberian railway and the other Northern routes only need to cross Mongolia or Kazakhstan – the other two corridors have to contend with a plethora of different railway regimes and border crossing, which can lead to significant delay and inefficiencies due to congestion and bureaucracy at the borders. While the railway network is relatively well developed in Uzbekistan, for example, the opposite is true in mountainous Kyrgyzstan.[7] The Southern Corridor has to contend with this issue more than the Middle one due to the number of countries involved. Another problem of the Middle and Southern Corridors is the orientation of the railway tracks in Central Asia, which generally run in North-South direction as opposed to East-West which would benefit the ISR Corridors. This is a legacy of the Imperial Russian and Soviet eras, when railways were oriented towards Moscow and the regional hubs along the Trans-Siberian railway. Yet another issue common to all three corridors is the need to change gauge at the borders of the former Soviet Union, which used broad-gauge tracks compared to the standard gauge used in Europe, the Middle East and China. In the case of the Northern Corridor, this is offset by fewer international borders, as mentioned above. For its part, the Middle Corridor has one major advantage over the Southern one, which the significant investment of Turkey, both in the political sense as well as financial, in this corridor. Turkey sees it as a way to expand its influence in the Caucasus and the fellow Turkic countries of Central Asia, as well as to isolate Armenia by circumventing it through Georgia and Azerbaijan. Turkey has already been developing these railway links in the Caucasus on its own, which leads to an informal burden-sharing arrangement with China. Since China is looking to cut its expenditure on the BRI in favor of expecting the partner countries to shoulder more of the cost,[8] this is a welcome arrangement for the Chinese government. And lastly, it must not be forgotten that Iran is under severe sanctions especially from the USA, making it a less attractive option for enterprises that

[6] PUTZ, C. (2024): China-Kyrgyzstan-Uzbekistan Construction to Begin in October, Kyrgyz President Says.
[7] PUTZ, C. (2024): China-Kyrgyzstan-Uzbekistan Construction to Begin in October, Kyrgyz President Says.
[8] AAMIR, A (2020): Turkey, Iran, Pakistan rail link to China's Belt and Road.

wish to do business in or with the countries that abide by these restrictions on economic cooperation with Iran. Even businesses in China are less eager to invest in Iran, and that includes the state-owned enterprises responsible for infrastructure investment to create the BRI and the ISR specifically.[9]

However, there are potential benefits to developing this Corridor, leading to an increase in interest in it especially since the beginning of the decade, compared to the neglect it suffered in the first few years of the BRI. For one thing, unlike the Middle Corridor, it runs entirely over dry land, meaning it does not have to rely on intermodal transport, i.e. ferries across the Caspian Sea, which could result in increased efficiency and savings of time. While the Northern Corridor still wins out over both other corridors in this respect, if a standard gauge railway would be constructed along the Southern Corridor in accordance with certain plans (especially relevant in the case of the CKU railway discussed in the following chapter), it would be a significant boost to the effectiveness and competitiveness of the Southern route.

Another strong point of the Southern Corridor is its proximity to other corridors of the broader BRI, such as the CPEC or the BCIMEC. Complementarity with the CPEC is already envisaged within the ITI railway of th Southern Corridor (see below).[10] As for the BCIMEC, India is also eyeing cooperation in transport infrastructure with Iran,[11] which could lead to significant synergistic effects for the ISR and BRI as a whole.

Still another potential benefit of the Southern Corridor is diversification. While the Northern Corridor has been the most heavily utilized since its inception, the sanctions placed on Russia (and Belarus, which is also on one of its routes) especially since its invasion of Ukraine in 2022 led to a decrease in interest in this corridor.[12] Such a turn of events demonstrated for China the risk of relying on one dominant transport route, as well as one major partner along that route. This realization led to the rise in importance of the Middle Corridor, and to the reevaluation of the positives and negatives of the Southern Corridor.[13]

2 Examples of Railways Projects within the Southern Corridor

While there are extant rail routes between the countries involved, they are seen as inadequate for the envisaged potential of the BRI, whether in volume or maximum speed of safe delivery of goods. Therefore, China has been negotiating with the countries along the corridor to upgrade existing railways, or even to construct new lines. The most relevant of the proposals for a new railroad is the CKU railway, named after the initials of the countries involved, i.e. China, Kyrgyzstan and Uzbekistan. While this railroad has been proposed already in 1997,[14] progress always floundered on disagreements about the precise route and the track gauge.[15] While China and Uzbekistan would prefer the shorter and more direct Southern route through Osh, in Kyrgyzstan, between their two countries, the Kyrgyz government would like to see the railroad built along the longer Northern route, so as to provide a link with the capital Bishkek and other large population centers.[16] The shorter variant would be 523 km long, of which 213 km would be built in China (with a terminus in Kashgar), 260 km in Kyrgyzstan and 50 km in Uzbekistan (terminating in Andijan).[17] The longer route adds 51 km to the Kyrgyz portion.[18] The other dispute, concerning track gauge, is between China on the one hand and the

9 SHOKRI, U. – NAJJARI, U. (2023): China Leaves Iran Out Of Major Investment Projects.
10 AAMIR, A (2020): Turkey, Iran, Pakistan rail link to China's Belt and Road.
11 RAMACHANDRAN, S. (2016): Iran, China and the Silk Road Train.
12 SEKHNIASHVILI, A. (2017): The Iron Silk Road's Centerpiece.
13 PUTZ, C. (2024): China-Kyrgyzstan-Uzbekistan Construction to Begin in October, Kyrgyz President Says
14 PUTZ, C. (2024): China-Kyrgyzstan-Uzbekistan Construction to Begin in October, Kyrgyz President Says.
15 DONNELLON-MAY, G. (2023): Full steam ahead for the China-Kyrgyzstan-Uzbekistan railway?
16 BULLOCK, B. (2022): The Silk Road Railway:Will It Ever Happen?
17 AAMIR, A (2020): Turkey, Iran, Pakistan rail link to China's Belt and Road.
18 PUTZ, C. (2024): China-Kyrgyzstan-Uzbekistan Construction to Begin in October, Kyrgyz President Says.

two Central Asian countries on the other. China wants to build the line in standard gauge track, to ensure an uninterrupted passage from the manufacturing centers in the Chinese interior to the European termini and logistics centers. While China would have to do the same would in Turkmenistan, which also uses Soviet gauge, Iran and Turkey both use standard gauge, meaning that a CKU railway built in standard gauge would make this ambition significantly closer to being realized. Uzbekistan and Kyrgyzstan, on the other hand, prefer broad gauge so they can more easily integrate the new line into their own Soviet-era rail networks. Both countries fear that a standard gauge railway would reduce them to transit countries between China and major Western economies, with express cargo trains moving back and forth without stopping in their territories, thereby excluding their businesses from participating in the trade exchanges. Negotiations on these issues led nowhere over the past decades. But during the first ever China – Central Asia summit on May 18th-19th 2023, convoked mainly to discuss the BRI and other aspects of mutual trade, investment and connectivity, the presidents of China and Kyrgyzstan, Xi Jinping and Sadyr Japarov (or Zhaparov), agreed to start building the railway.[19] However, further progress was postponed[20] until a further meeting in May 2024, when it was agreed that construction should commence on October of that year.[21] Whether these declarations are really the necessary breakthroughs remains to be seen, since the timetable is deliberately vague and, even more strikingly, the precise route has not been made public.

However, the Southern Corridor does not rely solely on its own construction and renovation projects. China is very willing to co-opt other existing or planned railway development projects into the ISR if they can fit the goals of the broader BRI. For China, which puts up most of the capital to finance the initiative and its projects, the benefit is in being able to subsume a ready-made project under the BRI banner without shouldering the costs of (re)construction. For the partner countries and railway companies, including unrelated railways in the ISR present a welcome opportunity to make the railroad more economically viable. This is accomplished by broadening the railway’s potential customer base of businesses wanting to use the railroad to transport goods between China and Europe, as well as other partner countries along the BRI.

The principal such independent project which the participating countries want to add to the ISR and BRI in general is the Istanbul-Tehran-Islamabad (ITI) railway. As can be seen from the name, this railway aims to connect the Turkish economic hub of Istanbul (and its railway connections to Europe) with the capitals of Iran and Pakistan. It is 6 540 km in total length, of which 1 950 km of rail track are located in Turkey, 2 600 km in Iran and 1 990 km in Pakistan. The project relies on a mix of old railroads connecting the capitals as well as new ones which should increase the speed and volume of cargo deliveries. While the projects dates back to 2009,[22] service was limited to a few test runs of cargo trains, and it was put on hiatus in 2011.[23] Interest in it from the three state parties was renewed in 2020, due to economic growth in the partner countries serving as an impetus to regional trade, the covid-19 pandemic stifling economic development and necessitating alternative means of growth, as well as the possibility to link it with the BRI. The railway resumed operations on Dec. 21st 2021, so far only as a freight service, but with plans to expand to a passenger service in the future.[24] There are already plans to link the ITI railway to the other lines in the ISR Southern Corridor, not only through the Central Asian railways to and from Iran, but also through the ML-1 railway set to link Pakistan with China, currently under construction. This line is expected to be finished in 2026

[19] DONNELLON-MAY, G. (2023): Full steam ahead for the China-Kyrgyzstan-Uzbekistan railway?
[20] OZAT, M. (2023): A Possible End to China-Kyrgyzstan-Uzbekistan Railway Line?
[21] PUTZ, C. (2024): China-Kyrgyzstan-Uzbekistan Construction to Begin in October, Kyrgyz President Says.
[22] AAMIR, A (2020): Turkey, Iran, Pakistan rail link to China's Belt and Road.
[23] Cradle News Desk (2021): Islamabad-Tehran-Istanbul railway project relaunches after decade long hiatus.
[24] Cradle News Desk (2021): Islamabad-Tehran-Istanbul railway project relaunches after decade long hiatus.

and it will result in yet another Southern railway connection between China and Europe via Iran and Turkey.[25] This demonstrates another aspect of the ISR, i.e. in interconnectedness with other BRI corridors. The ML-1 railway is part of CPEC, a separate corridor of the wider BRI, and the ITI railway is yet another means for China to diversify its transportation networks.

Conclusion

Compared to the Northern and Middle Corridors, the Southern Corridor of the ISR has been neglected until the beginning of this decade. The reasons for this state of affairs are the significant drawbacks of this corridor compared to the other two. The most relevant among them is the relatively poor state of railway infrastructure in the post-Soviet countries of Central Asia, which does not meet the requirements to handle cargo transportation in the volumes and speed envisaged by China and other Belt and Road participants, whether countries or private enterprises. There is also the problem that railroads in the post-Soviet states are oriented in a North-South direction towards Russia in general and Moscow in particular, which is not conducive to rapid and efficient transport of cargo. This drawback necessitates the construction of new lines going in a rather more East-West direction. The fragmentation of the region and its railway regimes is another problem, leading to long waits, and congestion while the necessary checks and other administrative tasks are carried out. The chilling effect of US sanctions on Iran is also a factor delaying progress on the development of this corridor. The necessity to change rail track gauge when entering and exiting the railway space of the post-Soviet countries is a weakness all three of the corridors share, but it compounds the problems mainly of the Southern Corridor, since the Northern one can outweigh this and other issues with ease and efficiency of travel, since it crosses relatively few borders, while the Middle Corridor can rely on the support of Turkey for political and economic reasons. However, this situation may be changing, due to geopolitical realities. Because of the Western sanctions on Russia, the Northern Corridor is not as popular at it sued to be previously, opening up space for the other two corridors. Of these, the Middle Corridor has a head start thanks to Turkish investment, but the Southern one can offer an uninterrupted land passage without the need for intermodal transport to cross the Caspian Sea, as well as complementarity and synergic effects with other parts of the BRI, as well as other regional players such as India. The Southern Corridor therefore has potential to become much more relevant within the transportation networks across Eurasia, renewing, in a sense, the traditional Silk Road.

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[25] AAMIR, A. (2020): Turkey, Iran, Pakistan rail link to China's Belt and Road.

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A REVIEW OF CLIMATE CHANGE THREAT DENIAL THEORIES AND APROACHES. DEFINING POTENTIAL CLIMATE CHANGE DENIAL STAGES

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Abstract: This paper analyses and evaluates several of the approaches, which argue on climate change origin and its significance. Although in results we find that only few scientific publications of such criticism are available, individual movements in society were able to push for larger spread of climate change impacts denial, based on selective exposure. Based on that, the information presented in such movements are partially based on scientific research but lack deeper examination which would potentially disprove the overall argument. Additionally, as there can be a different levels of denial, classification of potential and most common stages is proposed. As there is substantial number of specific arguments and hypothesis on why phenomenon of Climate Change and its derivatives could be misleading and non-anthropogenic, selective method is implemented. The results then point out to some of the selected approaches and claims within climate change denial, which were popularized and partially able to convince some, into thinking that they might be relevant, even if only for a shorter period. These claims are then attributed a Stage of climate change denial, as defined by this paper classification.
Keywords: climate change denial, anthropogenic activity, global temperature change
JEL: Q54, Q51

Introduction

Although general consensus on the strong presence of rapid climate change and global temperature increase within scholars could be observed, still few theories and unsupported assumptions claim, that there is very little, if none, anthropogenic correlation with global temperature increases and natural imbalances occurring in the past decades.

What most scholars were trying to investigate was an actual ratio or number of studies present, that directly questioned the anthropogenic global warming (AGW) and whether there is a significant area where climate scientists do not agree. Although these studies provided valuable results and clearly proven that there is a general scientific consensus with regard to climate change, they lack an investigation of the amount of other climate change denial claims and their potential impact on society. In fact, there are several key areas that these claims have in common that might undermine the scientific evidence. These can vary from already mentioned refusal to believe that human activity could be responsible for any larger environmental change (such as global temperature change) up to just not accepting the responsibility while acknowledging the issue. Such ideologies could be present due to several factors, although among the most rational one would be that we assume, that by removing the responsibility from us - human beings, we justify the conventional and comfortable way of living, which might be, or is, directly responsible for such unnatural and rapid changes in environment. If the responsibility is removed, which these theories and claims strive to do so, there is no need to experience “feeling of guilt” and therefore continuation of infinite and reckless consumption is validated. We also might put this into a perspective of degrowth ideology, which is trying to reflect on the issue of reckless consumptions, but which is also met with resistance even within the academic environment and economists. Indeed, reflecting on the acclaimed economic theories giving instructions on the most rational and desired behavior of economic actors, such as states or consumers, towards achieving growth that is essential for increase in life-standards, which all of us strive so hard to achieve, it is likely that restrictions that acts on climate change prevention would, in a certain way, impact the development of economical level of nations. Therefore, the claims on climate change prevention damaging the economy might not be entirely irrational, however, one need to critically differentiate between a long-term and short-term development, as well as overall impact of complete inactivity.

The impact of climate change denial movements and claims could already be observed on the larger scale. Although most are rather easily refutable with a brief literature and data review, they already reached some organizations and public figures, which might not have an interest in phasing out the climate damaging activities due to various reasons. Another thing, that studies analyzing the consensus on climate change, is neglecting the public sphere and not deviating from only analyzing scientific papers. Although of course, any claim put forward without any methodological approach and rational explanation of data would be just considered opinion for scholar, it might not be so much of an opinion to average population, which does not always desire proper research in order to adopt the presented ideology. Public figures with high impact ratio are often capable of presenting opinions as facts, and therefore we believe that it is necessary to look into consensus within this area as well. Especially since studies already satisfactorily proven the scientific consensus. That rationalize once again the classification that is proposed and that would be required in order to do so.

Based on that, first part of this multiple part study will define within this paper the potential stages of climate change denial, based on what extensive research might be conducted later, focusing on real life examples, their relevance and standing within scientific community.

1 Definition of climate change denial and its stages

As previously mentioned, climate change denial (or its aspects) could be observed in several stages. It can also differentiate by the actor who is promoting such ideas and thoughts, going from individuals, groups, communities up to organizations and state representatives. In simple terms we can define climate change denial as rejection of the proven scientific consensus, on a temperature change largely driven by anthropogenic activities. Hence, in order to be able to define the climate change denial theories and approaches, definition of the potential scale of denial is necessary. Few authors attempted to classify the scale of denial, later we will use an example of some which could be further enlarged.

In our paper, we propose an adjusted approach to climate denial stages, which is displayed in Table 1. We define the potential classification of each individual stage of approaches towards climate change, which could be observed in between different actors.

Table 1: Potential stages of Climate Change trivialization and denial. Basic classification

Stage	Classification	Implication
6. Stage	**Absolute denial**	Complete denial of climate change phenomenon. (Often includes conspiracy theories).
5. Stage	**Partial (Anthropogenic) denial**	Acknowledgement of climate (temperature) change phenomenon, but denial of human responsibility and impact on the observable occurrence.
4. Stage	**Significance denial**	Acknowledgement of climate change as well as its potential anthropogenic origin, but denial of its significance on life/humans.
3. Stage	**Urgency denial**	Acknowledgement of climate change as well as its potential anthropogenic origin, realization of its potential impact on human life, but denial of its urgency and necessity to act immediately.
2. Stage	**Responsibility denial**	Acknowledgement of climate change as well as its potential anthropogenic origin, realization of its potential impact on human life and the urgency and necessity to act immediately, but denial for personal responsibility.
1. Stage	**Assumption of powerlessness**	Acknowledgement of climate change as well as its potential anthropogenic origin, realization of its potential impact on human life and the urgency and necessity to act immediately, acceptance of personal responsibility but claiming powerlessness with regard to change on individual level.

Although a short description of possible implication gives a good idea on the overall approach of potential denials, brief more detailed description of each stage can be provided. If we are to agree that the climate change and global warming at current pace is in fact a negative and urgent occurrence, we would consequently define the;

Stage 6. Absolute denial [*"It is not happening"*] as the worst and most radical ideology. This stage would be specified by complete disproval and rejection of any scientific evidence and even possible suppression of subjective feel of annual average temperature increase.

Stage 5. Partial (Anthropogenic) denial ["*We are not causing it"*] claims would not go as far as complete refusal of available data and would acknowledge that there is indeed a change happening in past years that leads to global temperature deviation. Yet, they would refuse to believe that such occurrence is a result of human activity and would claim that it would be present no matter if humans were or were not on the planet. Often wise, these claims would be based on scientifically proven natural earth cycles - simply referring to cold period (glacials) and warm periods (interglacials), but completely lack the deeper data evaluation.

It is observable, that as we move towards Stage 1. within the table, the objections raised against the claims defined by climate change denials are getting more debatable. This still does not make them rational by any means however, what it does is, that in order to disprove them, more sophisticated approach needs to be adapted.

Stage 4. Significance denial ["*It will not change anything*"] does agree with the fact that humans might be responsible for global warming but refuses to acknowledge the severity of the issue. This might be shown by stating that the temperature increase is insignificant as well as the increase of GHG in atmosphere, and it does not present a threat to natural environment of earth. Usually, these claims are made based on reluctance to sacrifice the economic growth that might occur with implementing of climate change prevention measures.

Stage 3. Urgency denial ["*We have plenty of time"]* approach is in line with the fact that humans might be responsible for global warming as well as the potential significance and outcome of the temperature increase but refuses to acknowledge the urgency of the issue. While these claims would define the climate change issue as justified, they would argue that natural development of global economy will be able to deal with it and there is no need to act harshly and radically as we would be able to prevent any serious consequences ahead of time.

(Stage 2.5 – "Self-centered" denial [*"We cannot destroy the economy"*] could be introduced as well, in which stage an individuals or communities does agree with the fact that there is an urgency to prevent the activities that causes the global warming but refuses to do so while it can present economic challenges and slow down the economic growth. Therefore, this stage could be from sociological point of view defined as egoistic, as individuals transfer the consequences of current actions on future generations to deal with. We define this step outside of table, as this approach would portray the claimants in mostly a negative way, hence could be rarely observed.

Stage 2. Responsibility denial [*"I am not responsible, big companies are"*] group would understand all consequences and would not question the correctness of scientific backing of the climate change; however, it would not accept personal responsibility and would claim that their personal contribution to the deepening of the problem make up only a negligible amount. Responsibility for crisis is in this case possibly put on politicians, organizations, companies or other large economics actors. One example of such approach could be with popularized argument that criticizes the global efforts to divers from personal combustion engine vehicles to electric vehicles, while the emissions produced by aviation sector are "severely higher". This once again, are quite easily disputable claims, as just brief data analysis in a report provided by IPCC within its Sixth Assessment Report (2023) clearly shows that 70% of transportation emissions came from road vehicles, while only 12% came from aviation.[1]

Stage 1. Assumption of powerlessness [*"There is nothing I can do about it"*] on the opposite from complete denial, would be defined as the least radical approach, that still strives to validate the inactivity of individuals, through discouragement and feeling of powerlessness. Although accepting all the claims and acknowledging the responsibility, individuals would put the fault on the system as a whole, which is set the way, that they are unable to change their lifestyle towards the one, that would not support the damage that's being done to the environment.

Coming back, it might be a valid to question, whether Stage 2. and 1. should be included within the categorization of "climate change denial" as they in fact, do not deny the

[1] IPCC (2023): AR6 Synthesis Report: Climate Change 2023, In International Journal of Climatology.

phenomenon or its significance itself, just the necessity to act on personal level. Still, we believe that they undermine the overall efforts and hence should be included within our categorization.

Additionally, more extreme approaches could be observed, that promotes climate change as a positive trend that could bring benefits to the global development, especially certain regions. These claims are based on selective data presentation ("cherry-picking") which utilizes and actual and relevant parts of scientific and empirical evidence. We do not include them in the table yet, as they effectively do not deny the climate change, on the contrary, they agree with the fact that temperature change is real and radical, however they claim that no negative aspects will arise from it or, that those negative ones will be overwhelmed by positive ones.

As already hinted and interestingly enough, even scientific data does prove, that there would be possibly observable short-term benefits from the temperature increase up to a certain point, especially with regard to the growth of crops in certain areas. However, most of those publications state that those will be overshadowed by the overall long-term negative impact.[2,3,4]

Now in order to reflect to some available classification that were implemented in other studies, and that shows that similar approach and partial correlation with the one proposed by us, we mention two papers.

Gounaridis and Newell provided a rather simple table of classification[5] with two basic categories defined as "for" and "against", as a base for the AI training before deciding on the on the intent of twitter posts that were the basic data set. Now in this case "for" represented subjects that believed in the climate change and acknowledged its severity. "Against" on the other hand defined the climate change denial approach. The *against* was further branched into 4 different denials, which goes as follows:

a) *Trend denialism:*	The user shows disbelief that the Earth is warming, and climate change is real
b) *Attribution denialism:*	The user believes climate change is happening, but it is a natural, unpreventable process and anthropogenic greenhouse gases are not the dominant driver
c) *Impact denialism:*	The user believes climate change will not have significant negative impacts on the environment and humanity
d) *Evidence denialism:*	The user doubts there is trustworthy scientific consensus on climate change

Naturally, authors had to define the "For" part as well, which for the purpose of this study does not need to be further specified. Also, the term "user" is used, as the data set was derived from X (formerly known as Twitter) and represents online space claims. If we were to put this classification against our, we would be able to observe the similarities in approach, which further underlines the presence of such movements and claims. Firstly, the most extreme Trend denialism, which fully denies the event of climate change would reflect Stage 6. defined by us. Followed up by Attribution denialism which would be Stage 5. and Impact denialism which would reflect Stage 4. For the last - Evidence denialism - it would be by our classification hard to allocate the Stage, as it does not strictly specify the scale of scientific consensus disbelieve. It is likely, that that can range from doubts and disbelieve in overall climate change occurrence data and evidence (which would once again be categorized as Stage 6.), to disbelieve

[2] SULTAN, B. – PARKES, B. – GAETANI, M. (2018): Direct and indirect effects of CO2 increase on crop yield in West Africa.
[3] TOL, R. S. J. (2009): The Economic Impact of Climate Change, In Journal of Economic Perspectives.
[4] HERRING, D. (2020): Are there positive benefits from global warming? In National Oceanic and Atmospheric Administration.
[5] GOUNARIDIS, D. – NEWELL, J.P. (2024): The social anatomy of climate change denial in the United States.

into a potential impacts of climate change, while acknowledging the reality of temperature increase. Therefore, we do not include this possibility within our classification, as it is included within others Stages and would therefore act somehow duplicative.

Wullenkord, who was trying to understand the psychological functions of climate denial and explore potential distinct profiles within it, selected several different levels of denial.[6] Among those, 6 would be in alignment with our proposition, and could be compacted within simplified version. Those goes as follows; Avoidance, Denial of guilt, Rationalization of own involvement, Denial of personal outcome severity, Denial of global outcome severity, Literal denial. *Avoidance* as defined by author would cover Stage 3. as well as Stage 4. but in fact, the term used could represent any Stage. However, the authors finding suggest, that it is unrelated to *Denial of guilt*, which would be fittingly put to Stage 2., where individuals refuse to accept the personal responsibility and guilt.

If *Rationalization of own involvement* would refer to the process, when individuals justify their actions or participation in certain activities, particularly those that might be considered unethical, harmful, or otherwise questionable, then we would attribute it to the Stage 2. (or possibly 2.5 Self-centered denial) by our definition.

Denial of personal outcome severity would partially although not exactly represent Stage 1. Now, we would consider this a intermediate step between Stage 1. And Stage 2., as by our definition, Stage 1. Individuals might acknowledge the severity of their actions, but feel unable to change it, while by authors definition, those individuals might not acknowledge the severity and rationalize their actions, by claiming that they are so insignificant, that they could not possibly have any impact on global climate change. *Denial of global outcome severity* would quite correlate with Stage 4. while *Literal denial* would directly represent Stage 6.

Wullenkord also found, that individuals reported denial of global outcome severity least, while denial of guilt was more common. By her findings, "*rationalization correlated strongly with denial of global outcome severity and denial of personal outcome severity but also with avoidance and denial of guilt…. avoidance was unrelated to denial of guilt but had medium positive correlations with all other self-protective strategies. The two factors capturing interpretive forms of denial, namely denial of global outcome severity and denial of personal outcome severity, correlated strongly with each other and with rationalization, and less strongly with avoidance and denial of guilt.*"

While plenty of classifications are available, simplified and easily applicable to most cases would be hard to find. Consequently, that is also the reason why this paper is attempting to construct one, which could be further adapted, but at the same time would already be sufficient for immediate application and categorization.

Yet, this classification can be, after implementing larger scale data analysis, enlarged by branching individual stages or potentially even adding intermediate stages. However, for the purpose of this paper, it suffices in describing the general idea. Additionally, it provides a good basis for future analysis.

2 Methodology

As there is dozens of theories, hypothesis or just general claims originating in scientific background, media or public figures on why phenomenon of Climate Change is misleading and non-anthropogenic, selective method is implemented. Claims and theories tested within this paper are selected by their popularity or potential to be justified and based on actual scientific observation. Hence assumptions that are based on opinion, can be disproved by basic laws of physics and lack any scientific and methodological approaches are neglected.

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[6] WULLENKORD M. CH. (2022): From denial of facts to rationalization and avoidance: Ideology, needs, and gender predict the spectrum of climate denial.

Although selective method can lead to a phenomenon of so called "cherry picking" data, within this paper and the classification proposition it would be negligible, as the goal in that part is not to prove or disprove such claims, but to obtain as many approaches to climate change denial as possible and simplify them, so that they are easily categorizable.

Due to lack of scientific publications, available interviews and statement from public figures will be analyzed in order to obtain the "climate denial" claims.

For clarification, as term "climate change" is used frequently within the paper, and the argument for irrelevance of anthropogenic activity is one of the examined factors, this study will use term "anthropogenic climate change" or "anthropogenic global warming" (AGW) which will reflect an assumption, that human activities causes the negative temperature deviation. In contrast, if "climate change" is stated by itself, it just reflects the phenomenon of the observed changes in temperature in past decades, which is factually undeniable, otherwise currently known means of temperature measurement would be in question.

There are two key objectives of this study. Firstly, it proposes the potential classification of climate change denial stages based on a qualitative review of available scientific publications, literature and popularized claims by public figures or movements. We also analyze studies that already attempted to put forward some form of climate change denial classification and reflect on their findings. Secondly, in order to test the potential of classification proposed within this paper, several examples are put forward which indicate how such claims can be categorized within defined stages and what use could this classification serve. Based on this, the possible extension of study might be able to point out whether there are any highly popularized claims that go directly against the scientific evidence of anthropogenic climate change or climate change itself in existence. Additionally, the relevance of such claims could be put to the test.

3 Results and applications

Now, since this paper discusses a climate change denial theories together with general claims from public figures or other individuals and actors, it is necessary to provide some backing for defined stages of denial. Although deeper analysis and categorization of sampled claims and theories withing our classification would be conducted in the extension of this study, here we provide some data review based on which, classification was established and could be potentially expanded in the future.

Firstly, the theories claiming that anthropogenic activities are not contributing to climate change are almost non-existential. Not only that, but within a basic instruments and search mechanisms it is almost impossible to obtain any rational scientific study which would claim that the climate change is not caused by humans. Of course, this could not be any other way, since disproval of such claims would be inevitable and imminent, just buy applying the basic chemistry and physics principles, proven by empirical evidence from practice. Here we speak about the fact of releasing CO_2 molecules by burning fossil fuels and their effect on atmosphere and heat preservation. And since we know, that humans do indeed release the CO_2 (among other GHG gases) stored beneath and on the surface of the earth into an atmosphere faster than what would be considered a natural development based on constant measurements, and we know for a fact, that chemical composition of such molecule or compound does indeed prevents heat from escaping the earth,[7,8,9] no argument against causality of anthropogenic activity and global temperature increase could stand. Hence, if we speak about "theories"

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[7] RAMASWAMY, V. (2001): Radiative Forcing of Climate Change. In IPCC TAR Climate Change 2001: The Scientific Basis.

[8] SCHNEIDER, S. H. (1989): The Greenhouse Effect: Science and Policy.

[9] BURNS, D. – CLIMATE FEEDBACK (2024): How CO2 warms Earth through the greenhouse effect and why CO2 is not 'saturated' in Earth's atmosphere.

no relevant studies that can be easily obtainable, that could be attributed to Stage 6. of denial. Additionally, deeper dive into a reckless hunt for finding at least one such study would most likely result in finding it published in untrustworthy journals or medias, which would again, render its scientific validity highly questionable. However, there is a difference between complete denial of the impact of anthropogenic activity and its partial denial. Hence more sophisticated approaches could be observed by some, that are vehemently trying to find a possible shortcomings of scholars calling for carbon neutrality.

Two studies held by Oreskes[10] and Cook (et al.)[11] in 2004 and 2013 respectively, analyzed a large number of scientific papers focusing on climate change. The later one was updated in 2016[12] when Cook and his team conducted "synthesis of consensus estimates on human-caused global warming". Key question was whether there are any papers claiming the insignificance of human activities with regard to temperature changes and if so, how common are they. Oreskes was approaching this question, after IPCC stated, that claim; "*most of the observed warming of the last 50 years is likely to have been due to the increase in greenhouse gas concentrations"* accurately reflects the current thinking of the scientific community. In order to prove or disprove this argument, she analyzed 928 abstracts, published in refereed scientific journals between 1993 and 2003, and listed in the ISI database with the keywords "global climate change". Of all the papers, 75% were either explicitly or implicitly accepting the consensus, while 25% took no position on current anthropogenic climate change. Remarkably, none of the papers showed a disagreement with the consensus position.

The analysis at the end proven, although with slight limitation as it only analyzed the abstract of the papers, that scientists publishing in the peer-reviewed literature agree with IPCC, the National Academy of Sciences, and the public statements of their professional societies. It would appear, that these results suggested a 100% consensus.

Cook and his colleagues were able to process more data. Specifically, they analyzed 11 944 papers written by 29 083 authors and published in 1980 journals. Although initially dividing the possible positions of analyzed authors to seven categories, a simplified approach was focusing on three mains ones – endorsement, no position and rejection. Although only 32.6% of all papers clearly supported claim of anthropogenic global warming, among those, an overwhelming percentage of 97.1% (based on abstract ratings) endorsed the scientific consensus on anthropogenic global warming. On the other hand, only 0.7% rejected AGW and 0.3% were uncertain about the cause of global warming, adding up to 1% of climate change denying or trivializing publications.

At the time, Cook also claimed, that 11 944 papers is still way too small of a sample within the climate literature. This was based on a fact, that Web of Science search for a keyword 'climate change' over the 1991–2011 period yielded 43 548 papers, while a search for just 'climate' yielded 128 440 papers. Currently, after defining the keyword "climate change" in a period from 2000-2024 there is more than 614.000 results within Web of Science Core Collection, which would be physically impossible to analyze each one of them by human. One possible way how to achieve even more accurate results for question of overall scientific consensus within climate change would be implementation of artificial intelligence in the future, that could be taught how to differentiate in between refusal and endorsement.

Cook later in 2016 publication adjusted the estimated percentage of consensus to be in between 90-100%. This time he did the quantification using different approach.

[10] ORESKES, N. (2004): The Scientific Consensus on Climate Change.
[11] COOK, J. et al. (2013): Quantifying the consensus on anthropogenic global warming in the scientific literature. Environ. Res. Lett 8.
[12] COOK, J. et al. (2016): Consensus on consensus: a synthesis of consensus estimates on human-caused global warming. Environ. Res. Lett. 11.

He analyzed available papers that were directly researching exactly the same thing – consensus within climate change and its origin. He found that most of the relevant results pointed out to already mentioned scale between 90% to 100%. Ones that suggested lower percentage usually included authors and their papers with lower expertise in climate science.

Ritchie, in his article[13] argues that the widely accepted number of "97%" might be rather unrealistic. He provides a rational argument about the possible shortcomings of methodologies applied within the two studies mentioned above, that might have fabricated the overall consensus number in favor of the intended or expected results. Nevertheless, even after analyzing other less popular studies questioning the scientific consensus available in 2016, the number would most likely not go beneath the 80% of overall consensus, which is still very high.

Once again, it is necessary to mention, that most studies that are not directly specifying the importance of anthropogenic activity, are also not disproving its relevance. Mostly, the scientist behind them did not explicitly state their position.

Overall, it does not really matter if the agreement is 80%, 90% or 100% as each of these ratios clearly states, that a significantly larger number of scientists agree on the severity of climate change as well is its main drive and origin in 20th and 21st century.

One of the more popularized scientific studies[14] that could be referred to as "climate change denial" by the definition of this paper, written in 2021 by Alimonti (et al.) and published by Springer Nature, questioned the presence of so-called climate crises. Part of the results of the article stated that "*today, we are facing a warm phase and, for the first time, we have monitoring capabilities that enable us to objectively evaluate its effects. Fearing a climate emergency without this being supported by data, means altering the framework of priorities with negative effects that could prove deleterious to our ability to face the challenges of the future, squandering natural and human resources in an economically difficult context.....*". Through the results, it was observable, that the authors are clearly stating that there is no true scientific data that could prove the correlation between climate change and extreme events. „*In conclusion on the basis of observational data, the climate crisis that, according to many sources, we are experiencing today, is not evident yet*" claimed the paper in abstract. Although the study was not fully in disagreement with the significance of climate change and its potential outcomes, based on the claims that it strived to rationalize, our classification based would put it into Stage 3. Nevertheless, after the concerns that were raised regarding the methodology and the results, and even additional submission of addendum requested, this article was later (after gaining more controversial publicity) retracted by the publisher's Editors-in-Chief, which claimed that they „*no longer have confidence in the results and conclusions reported*."[15]

Due to the limitation of this paper a deeper analysis of the climate denial papers shortcoming will be provided within the paper extension directly reflecting on rationality of climate denial theories and approaches. Additionally, as the public sphere of information spread is not limited by any means, on the contrary to scientific studies that are reviewed and validated by several people who needs to vouch for them and explain the relevance of methodology by which they stated the claim, a much larger variety of climate change denial is present outside of scientific area. Although these claims might not stand on scientific level, it is necessary to look into them and understand their nature and origin, in order for scientist to be able to explain their irrelevance effectively.

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[13] RITCHIE, E. J. (2016): Fact Checking The Claim Of 97% Consensus On Anthropogenic Climate Change. In Forbes.

[14] ALIMONTI, G. – MARIANI, L. – PRODI, F. et al. [RETRACTED ARTICLE] (2022): A critical assessment of extreme events trends in times of global warming. Eur. Phys. J. Plus 137, 112.

[15] Springer Link Editors-in-Chief (2023): Retraction Note.

Conclusion and discussion

This paper presents, that there are clearly several stages of climate change denial (or anthropogenic global warming denial as most scholars would refer to it) which should be taken into account. Therefore, we simplified the categorization based on already available ones as well as actual claims from scientific sphere, which were qualitatively attributed a category. Furthermore, it is still required to analyze the public sphere, which might potentially enlarge and branch the basic classification. We believe that it is necessary, in order to be able to name the issue and the severity of denial whether it's coming from scholars or public figures who are able to popularize them. Additionally, we reviewed the latest findings on the scale of scientific consensus within the field of climate change and pointed out to still ongoing trend of high consensus, at least at the level of 80%, which might still be considered a conservative estimate.

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1. ALIMONTI, G. – MARIANI, L. – PRODI, F. et al. [RETRACTED ARTICLE] (2022): A critical assessment of extreme events trends in times of global warming. Eur. Phys. J. Plus 137, 112. [online] Available online: https://doi.org/10.1140/epjp/s13360-021-02243-9.
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4. COOK, J. et al. (2016): Consensus on consensus: a synthesis of consensus estimates on human-caused global warming. Environ. Res. Lett. 11 [online] Available online: https://iopscience.iop.org/article/10.1088/1748-9326/11/4/048002/pdf.
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9. RAMASWAMY, V. (2001): Radiative Forcing of Climate Change. In *IPCC TAR Climate Change 2001: The Scientific Basis.* [online] Available online: https://www.ipcc.ch/site/assets/uploads/2018/03/TAR-06.pdf.
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11. SCHNEIDER. S. H. (1989): The Greenhouse Effect: Science and Policy. In *Science 243*. [online] Available online: https://stephenschneider.stanford.edu/Publications/PDF_Papers/; TheGreenhouseEffectScienceAndPolicy.pdf
12. Springer Link Editors-in-Chief (2023): Retraction Note. [online] Available online: https://link.springer.com/article/10.1140/epjp/s13360-023-04386-3.
13. SULTAN, B. – PARKES, B. – GAETANI, M. (2018): Direct and indirect effects of CO2 increase on crop yield in West Africa. [online] Available online: https://doi.org/10.1002/joc.5960.
14. TOL, R. S. J. (2009): The Economic Impact of Climate Change, In *Journal of Economic Perspectives*, ISSN 1944-7965. Available online: https://aei.pitt.edu/87788/1/WP255.pdf.
15. WULLENKORD, M. CH. (2022): From denial of facts to rationalization and avoidance: Ideology, needs, and gender predict the spectrum of climate denial. In *Personality and Individual Differences.* [online] Available online: https://www.sciencedirect.com/science/article/pii/S0191886922001209.
16. READFEARN, G. (2023): Scientific journal retracts article that claimed no evidence of climate crisis. In *The Guardian*. [online] Available online: https://www.theguardian.com/environment/2023/aug/26/scientific-journal-retracts-article-that-claimed-no-evidence-of-climate-crisis

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THE FORMATION OF STRATEGIES WITHIN THE MICROFINANCE DISCOURSE

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Abstract: The aim of this paper is to analyze the microfinance discourse. The method of the paper follows Foucault's Archaeology of Knowledge rules of formation of a discourse with a particular focus on the rules of formation of strategies. The analysis shows the various contradictory strategies within the discourse such as the use of the term "solidarity" and the way the microfinance discourse depoliticizes poverty presenting women as entrepreneurial subjects responsible for their fate. The concluding section contemplates on the limits of microfinance.
Keywords: microfinance, discourse, economics
JEL: G21

Introduction

After a series of changes in the development discourse, microfinance emerged as the new champion who will save the poorest and will bring prosperity to all. The history of microfinance dates back to at least the 18th century, for example the Irish Loan Fund. One may argue that microfinance emerged due to the need of capital to constantly expan,[1] at the same time the emergence of microfinance occurred during the same period as the rise of neoliberalism.[2]

There are many elements of the microfinance discourse, but this paper focuses on a few selected ones. In particular, following Michel Foucault's Archaeology of Knowledge, I will analyze the formation of strategies. There are various contradictory strategies within the discourse such as the use of the term "solidarity". Further more, I will analyze the functions of the discourse as part of the analysis of discursive strategies. Most importantly I will show how the discourse depoliticizes poverty representing women as entrepreneurial subjects responsible for their fate.

1 The formation of strategies

1.1 Points of incompatibility

There are various contradictory strategies within microfinance that can be put under the heading "points of incompatibility."[3] Regarding the women's relationship with the world, individual and collective approaches are used alongside each other. On the one hand, microfinance draws on liberal theories of an individual who will be able with the credit she gains to improve her position through the market. As an entrepreneurial agent, the woman is represented as an individuality. On the other hand, microfinance evokes feminist and union traditions. The notion of solidarity groups implies that apart from capital, these also generate "collective consciousness of, and resistance to, oppression."[4] Both these approaches find their

[1] FERNANDO, J. L. (2006a): Introduction. Microcredit and empowerment of women: blurring the boundary between development and capitalism, pp. 1-42.
[2] RANKIN, K. N. (2006): Social capital, microfinance, and the politics of development, pp. 89-111.
[3] FOUCAULT, M. (2002): Archaeology of Knowledge, p. 73.
[4] RANKIN, K. N. (2006): Social capital, microfinance, and the politics of development, p. 86.

place in the microfinance discourse and not only both contradict each other, but at the same time the individual woman who is entangled in her social relationships does not act as a rational market agent and is oppressed through the economy of shame within her society. At the same time, as I already said, "solidary" group work against women's solidarity and act as a monitoring device.

In general there are three types of microfinance, for-profit, NGOs or foundations and cooperatives.[5] Even though cooperatives outnumber microfinance operations in many countries[6] the first two types are dominant in the microfinance discourse, with the first one taking primacy after the so called new wave microfinance. According to Von Pischke, the major difference between for-profits and NGOs is determined by their approaches to subsidies. Whereas the former do not subsidize their loans or the institutions that offer them, NGOs consider subsidies to be essential. Their goal is not profit, but the alleviation of poverty and therefore they care about impact of the credit and not just the repayment rate. Or so thinks Von Pischke. According to Karim who studied the major NGOs in Bangladesh "the primary focus of these institutions [is] now on business enterprises, instead of their earlier focus on social programs."[7] There certainly is an image of an NGO that offers credit together with many other social services such as literacy, health or social projects. As the objective of getting loans repaid overrides other objectives and as the NGO employees are pressured to achieve high repayment rates, the attention is paid not to social questions, but to the ways how to assure repayment. The commercial and NGO approaches are thus becoming increasingly similar. Cooperative credit organizations are in general excluded from the microfinance discourse.

The 1990s saw the beginning of the new wave of commercialization of microfinance. This approach has the same characteristics as any other for-profit business. The ethical problems this "win-win" approach brings are therefore also similar to the ethical problems of other business ventures. The Comparatamos affair has shown that with commercial microfinance, the interest rate can reach up to 100% and the bonuses for the CEOs reached the levels of other successful corporations being in stark contrast with the conditions of the poor.

The overall trend is thus towards the more narrow approach of lending without other non-financial services. However that does not mean that a more social oriented approach does not coexist next to it.

Finally, a question of alternatives related to the development discourse needs to be resolved. Milford Bateman at the end of his critical and also controversial book (for a critique see Roodman,[8] for a more favorable review see Harper[9]) argues for various forms of alternatives to conventional microfinance.[10] He briefly introduces the way credit has been used in Japan, Mondragon (Spain) and Northern Italy after the Second World War as well as Taiwan, South Korea, China, Kerala (India), Venezuela and most of all Vietnam. The key aspects of (what he calls) success of these alternatives is the use of subsidies, sectoral targeting lending, longer-term loan maturities, integration of microentreprises into supply chains as production-based units, public and community ownership of financial institutions and attempts to incorporate microentreprise and SME "development" into local strategic planning process.[11]

Most important is the change from the focus on *micro*entrepreneurs to more sophisticated production within larger units. The question of course is whether one still can

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[5] VON PISCHKE, J. D. (2007): Methodenstreit and sustainability in microfinance: Generalizations describing institutional frameworks, pp. 137-148.
[6] Ibidem, p. 146.
[7] KARIM, L. (2011): Microfinance and its Discontents. Women in Debt in Bangladesh, p. 65.
[8] ROODMAN, D. (2010): Why Doesn't Milford Bateman's Book Work?
[9] HARPER, M. (2010): Book Review: "Why microfinance doesn't work".
[10] BATEMAN, M. (2010): Why Doesn't Microfinance Work? The Destructive Rise of Local Neoliberalism, pp. 166-200.
[11] Ibidem, p. 199.

consider this a *micro*finance that shares the same rules of formation with the neoliberal approach I tried to describe above.

It is fairly clear that alternatives proposed by Bateman are mostly “development alternatives” rather than “alternatives to development”. The examples he uses all aim at more complex forms of production and many of them have already succeeded in this development. In this sense his proposals are parts of the general development discourse.

According to Bateman, the success of the Vietnam microfinance model “is hugely resented by the microfinance industry.”[12] Vietnam embodies this “development” strategy. I would therefore argue that this model is so different from e.g. the Grameen Bank model that whereas it is possible to claim that it remains part of the development discourse, it is outside the current microfinance discourse. This discourse is dominated by the narrative of a single female entrepreneur who as an individual will be capable to run a business and thus earn her living.

1.2 Depoliticizing function

There are several functions the microfinance discourse carries out in the field of non-discursive practices. As it deals with women as the supposedly main beneficiaries of the practice of lending, it gains prominence within the feminist discourse. Being in accordance with the mainstream tenets of the development discourse, it is not surprising that it adds to the marginalization of radical socialist feminism in gender and development debates.[13]

The practices based on the microfinance discourse treat all women borrowers as clients. This is what Fernando calls “clientification of gender”[14] and it is similar to the effects the image of homo oeconomicus had for neoclassical economics. The subjectivity of women is cultivated into a neoliberal subjectivity, which acts in accordance with the neoliberal logic of the rationality of the market. Empirical evidence shows that women do not actually behave in this way and the microfinance governmentality does not always succeed in its subjectivation of women. Still, this is the mode in which the microfinance discourse operates. As the women are constructed as homo oeconomicus (even if at the same time they are constrained by their kin obligations) the general neoliberal reforms of the state gain legitimacy (ibid.). Any demands by social movements or unions can be dismissed on the basis of the existence of the rational woman who empowers herself through the market rather than more collective mechanisms.

Furthermore “[m]icrofinance functions as a catalyst for financial sector liberalization.”[15] It facilitates this liberalization and in this way, financial globalization can reach the local level. Therefore Bateman can claim that “[m]icrofinance is ‘local neoliberalism’.”[16] As actors are assumed to be rational and reachable at the lowest income strata, capital can penetrate into the most intimate spheres of people’s lives. Microfinance enables this local reach of global finance. It thus “facilitates and entrenches neoliberal forms of governance.”[17]

This spread of neoliberalism, financial globalization and financial sector liberalization is within the win-win scenario considered as “a prerequisite for poverty reduction [that] serves to legitimate this outcome.”[18] Since microfinance is supposed to lead to the poverty reduction, it is necessary to pursue financial liberalization that will enable actors offering

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[12] Ibidem, p. 196.

[13] FERNANDO, J. L. (2006a): Introduction. Microcredit and empowerment of women: blurring the boundary between development and capitalism, p. 24.

[14] Ibidem, p. 27.

[15] WEBER, H. (2002): Global governance and poverty reduction. The case of microcredit, p. 135.

[16] BATEMAN, M. (2010): Why Doesn’t Microfinance Work? The Destructive Rise of Local Neoliberalism, p. 165.

[17] WEBER, H. (2006): The global political economy of microfinance and poverty reduction: locating local “livelihoods” in political analysis, p. 55.

[18] WEBER, H. (2002): Global governance and poverty reduction. The case of microcredit, p. 136.

microfinance to work. The discourse not only contains this assumption, at the same time it also contains the confirmation of this assumption. All those research papers and scientific articles that focus on the repayment rates prove that microfinance is good. The exclusion of other impacts of microfinance on women from the discourse is of great importance for the legitimization of the continuation of microfinance minimalist approach that disregards other services NGOs (and banks) could provide.

Similarly to the development discourse, there are depoliticizing effects at play here as well. As I already explained, microfinance individualizes its subjects constructing them as rational economic women. They are supposed to improve their situation through the market mechanisms becoming successful entrepreneurs. "An accompanying effect of this individualisation of poverty is its depolicticisation: as poor are made responsible for their poverty, redistributive approaches to poverty alleviation tend to be ignored."[19] Or in other words: "When poor women are constructed as responsible clients in this way, the onus for development falls squarely on their shoulders."[20] According to Rankin, the small farmers with social rights is replaced by women clients who are free to compete at the market and at the same time are responsible for their families. Poverty is then not the result of failed policies of the state, but since the market is allegedly a neutral arbiter between equal actors, poverty is the result of wrong choices made by the poor. In this way, the great inequality in power relations not only at the local, but also at the national and international levels are depoliticized. The way to fight poverty is not by changing these unequal relations, but by offering the poor a place in a supposedly equal competition. When they fail, they are to be blamed and the structural problems remain intact. Microfinance through depoliticization of poverty legitimizes the current state of affairs. It is therefore unsurprising that it is embraced by so many organizations, especially banks, who promote the perspective that any solution to poverty can only stem from within the current system.

It is not only the social construction of women as entrepreneurs that depoliticizes poverty. The use of categories such as the poor, the hard-core poor, the marginal, the landless etc. serve the same purpose. On the one hand they are useful for managing large segments of the population, on the other "they tend to obscure the structural conditions and class relations that produce poverty in the first place."[21] Through these categories poverty can be discussed in a way that disregards how the poverty common to all of them is the result of unequal power relations. These categories enable studies that examine microfinance with factors such as health or mobility in relation to one of these groups to be written and in this way simply avoid the question of structure.

In this way specific microfinance knowledge has political implications "because it legitimizes certain types of interventions as necessary for 'improvements' in the economic and social fields, while at the same time, it tends to obscure other ways of organizing resources and people."[22] The function of the whole apparatus and of the knowledge it creates is to point at certain aspects of reality and at the same time disguise other. If a researcher focuses on the way a women can be better off with a small loan for the production of chicken, s/he is at the same time not focusing on the ways this women could be better off if is she would decide to demand redistribution of land in her village for example. Of course, many women never get to produce chicken, but merely pay for survival needs only to worsen their position when they have to pay the interest.

[19] BRIGG, M. (2001): Empowering NGOs: The Microcredit Movement Through Foucault's Notion of Dispositif, p. 248.
[20] RANKIN, K. N. (2001): Governing development: neoliberalism, microcredit, and rational economic woman, p. 29.
[21] KARIM, L. (2011): Microfinance and its Discontents. Women in Debt in Bangladesh, p. 165.
[22] Ibidem, p. 201.

Not only does the research depoliticize poverty, at the same time it serves to satisfy donors. "The donors (…) need such data on the efficacy of different aid programs sponsored by them to justify to their governments the need for continued grants to Bangladesh."[23] We in the North need successful stories of poverty reduction to gain the feeling that we are actually doing something with the extreme misery that exists in the world. At the same time the owners of the capital (often located in the North) gain profits as well. Since the researchers in Bangladesh coming from the middle class are not in the position to contradict the expectations of NGOs for whom they work as consultants, they produce knowledge that is then used not only by NGOs to legitimize their work in the eyes of the donors, but also by the donors themselves who can claim to their home constituencies – either state agencies, companies doing CSR or individual contributors – that what they do has a significant impact on the lives of the poor. Research that shows that this is not the case is growing, but this dissent is silenced by much louder voice of the mainstream narrative of microfinance success. However, Karim anticipates "that NGO-sponsored research will also face scholarly scrutiny in the years to come as these institutions expand."[24]

NGOs working as "discursive epistemic machines"[25] write about the borrowers. They thus keep record about them, use their writing as PR or as accounting, just as any other modern bureaucracy. Their objective is to increase their visibility, gain more funds to replicate their programs and satisfy their donors. But the writing also serves as "a form of social control."[26] Critiques are silenced "and made illegal within dominant development discourse."[27] As the knowledge produced gains in volume, it is capable of silencing critical voices simply by reproducing the already existing knowledge. The function of discourse is thus the exclusion of critical voices.

Finally, I would like to point at the "rules and processes of appropriation of discourse."[28] The question is, who has the right to speak in the discourse, who has the strongest influence regarding the discourse, whose property the discourse becomes. As I already mentioned it in the part on urgent need,[29] ascribes the specific form of credit to the currently existing "credit regime" that can be best defined by the context in which it is embedded. The current credit regime is, as I hope is clear by now, embedded in the current neoliberal capitalist regime.

Those who are crucial for the way this discourse operates are those working in the new wave microfinance institutions whose main motivation is profit. They maintain the win-win narrative as it legitimizes their goals. There is no systematic collaboration between the field officers and target groups in planning, implementation and evaluation of credit programs. All of this is decided at the top level between the donors and the NGO leaders. NGOs are not accountable to their recipients, but primarily to the international donors who succumb to the current neoliberal rhetoric.[30]

Microfinance discourse is therefore most influenced by the ideas coming from the private sector that promote market as the mechanism that is capable of reducing poverty.

Conclusion

In this paper I tried to put together some of the main tenets of the microfinance discourse. Contradictory strategies include the perception of the women as individual rational

[23] Ibidem, p. 175.
[24] Ibidem, p. 201.
[25] Ibidem, p. 167.
[26] Ibidem, p. 167.
[27] Ibidem, p. 166.
[28] FOUCAULT, M. (2002): Archaeology of Knowledge, p. 75.
[29] FERNANDO, J. L. (2006a): Introduction. Microcredit and empowerment of women: blurring the boundary between development and capitalism, p. 8.
[30] FERNANDO, J. L. (2006b): Mcirocredit and empowerment of women: visibility without power, p. 180.

actors and at the same time members of solidary groups of borrowers. On the one hand the, there is the strategy of profit oriented microfinance, on the other, there is microfinance that is subsidized and includes other social services. However, the latter dominates the discourse and the practice.[31] Alternative microfinance is part of the general development discourse, but seems to be outside the microfinance discourse especially due to its size. Most importantly, the function of microfinance is to depoliticize poverty by constructing clients as responsible for their fate. At the same time it enable deeper penetration of capitalism into the lives of the poor. The discourse of successful credit institutions serves the donors to secure their existence. They dominate the credit regime that is embedded in its neoliberal context thus privileging the creditors over the debtors.

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[31] BATEMAN, M. (2010): Why Doesn't Microfinance Work? The Destructive Rise of Local Neoliberalism, p. 113.

13. WEBER, H. (2006): The global political economy of microfinance and poverty reduction: locating local “livelihoods” in political analysis. In FERNANDO, J. L. (ed.): *Microfinance. Perils and Prospects*. Oxon and New York: Routledge, 2006, pp. 43-63.

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THE IMAGE OF MIGRATION IN ALTERNATIVE MEDIA. CASE OF "EARTH AND AGE" (ZEM A VEK)[1]

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Abstract: The paper focuses on the image of migration and incoming migrants to the EU in the alternative media in Slovakia. The aim of the paper is to analyse the image given by the media Earth and Age (Zem a Vek) to its readers about incoming migration to the EU. The first part defines the concept of atlernative media and introduces the approach of the academic community to this issue. The second part analyses the alternative media Earth and Age (Zem a Vek) and specifically its approach to the issue of foreign immigration. The paper analyses the lexis used in the articles, the image they portray incoming migrants and the EU.
Keywords: migration, alternative media, misinformation, migrants
JEL: F22, J15

Introduction

The expanding influence of alternative media on the dissemination of specific information is a source of interest in the scientific environment not only abroad, but also in Slovakia. The concept of alternative media has emerged as a contrast to the traditionally established mainstream media.[2] The academic community has begun to explore the very issue of alternative media and its political, economic, sociological and, not least, psychological impact. Research shows that alternative media promotes inaccurate beliefs about politics.[3] According to Guess et al.[4] also Jamieson and Cappella[5] the influence of alternative media on their audiences leads to a significant increase in distrust of mainstream news. Researchers and academics have found in their studies that alternative media content elicits high engagement on social networking sites[6] and that, at the same time, the use of these platforms is directly proportional to the uptake of information from alternative media.[7]

[1] This article was written as part of the project "Alternative Media in Slovakia and Their Coverage of Economic and Political Issues" (I-24-101-00), funded by the University of Economics in Bratislava.
[2] HOLT, K. – USTAD FIGENSCHOU, T. – FRISCHLICH, L. (2019): Key dimensions of alternative news Media, pp. 860-869.
[3] GARRETT, R. K. – WEEKS, B. E. – NEO, R. L. (2016): Driving a wedge between evidence and beliefs: how online ideological news exposure promotes political misperceptions, pp. 331-348.
[4] GUESS, A. M. – BARBERÁ, P. – MUNZERT, S. et al. (2021): The consequences of online partisan media.
[5] JAMIESON, K. H. – CAPPELLA, J. N. (2008): Echo Chamber: Rush Limbaugh and the Conservative Media Establishment.
[6] FARIS, R. M. – ROBERTS, H. – ETLING, B. et al. (2017): Partisanship, propaganda, and disinformation: online media and the 2016 U.S. presidential election; KALSNES, B. – LARSSON, A. O. (2021): Facebook news use during the 2017 Norwegian elections: assessing the influence of hyperpartisan news, pp. 209-225; LARSSON, A. O. (2019): News use as amplification: Norwegian national, regional, and hyperpartisan media on Facebook, pp. 721-741; LARSSON, A. O. (2020): Right-wingers on the rise online: insights from the 2018 Swedish elections, pp. 2108-2127; SANDBERG, L. A. – IHLEBÆK, K. A. (2019): Start sharing the news: exploring the link between right-wing alternative media and social media during the Swedish 2018 election, pp. 421-440.
[7] MÜLLER, P. – SCHULZ, A. (2021): Alternative media for a populist audience? Exploring political and media use predictors of exposure to Breitbart, Sputnik, and Co, pp. 277-293.

According to behavioural models, exposure to misinformation increases the likelihood that people will believe it, which in turn increases the likelihood that they will spread it. At the same time, however, people do not necessarily believe it in order to spread it. According to experts, psychological factors have a significant impact on this process. Academics agree that people are more likely to share false and misleading information if it is consistent with their personal identity or social norms, if it is new and, last but not least, if it evokes strong emotions. False information spreads differently on social media than in traditional media such as television, radio and newspapers. Mainstream news media usually have robust safeguards in place to prevent and correct false claims. In contrast, when presenting information in alternative media, there are no measures to prevent or correct false claims. The speed at which information is shared on the Internet allows ordinary users to disseminate information to large audiences and in a short space of time, which prevents subsequent checking or correction of the information if it is misleading.[8]

Within the framework of the research project "Alternative media in Slovakia and their coverage in the economic and political sphere" the paper aims to analyse online published articles on migration issues in one alternative media, in our case it was the periodical Zem a vek (Earth and Age). Also due to the content limit of the conference paper, it opens up possibilities for exploring migration issues in other alternative media, possibly comparing them.

In this paper we have focused on the portrayal of the issue of migrants and migration and the way information related to this issue is presented. The periodical in question is a medium that is published not only in online form but also in print as a magazine. According to the internet domain konspirátori.sk: "The website does not respect the basic principles of journalistic ethics: it does not publish corrected news, it leaves available and uncorrected news that objectively turned out to be false. The site does not have a clear owner and authors (protection of sources and the possibility of pseudonyms are respected), the site does not publish possible reactions of the party concerned, it mixes news and comments in a rude way, it repeatedly publishes shocking false claims in order to increase traffic, but corrects them in a reverse way, etc." However, from a scientific point of view, it is difficult to grasp the issue of misinformation, as we cannot scientifically determine or explain and confirm when misinformation is misinformation.

From the above information, it is clear that the medium, Earth and Age, not only fails to follow the rules and principles of traditional journalism and journalistic ethics. Despite the fact that not only the traditional media, but also political and social actors in Slovakia refer to the above-mentioned media, which deviate from the rules and principles of traditional journalism and journalistic ethics, with the term disinformation media, in our paper we will stick to the term alternative media, as this term is used in the academic and scientific community. On the other hand, even from the scientific point of view, it is difficult to grasp the issue of dissemination of misleading information, since we cannot scientifically determine or explain and confirm when exactly misleading information is involved. Our paper focuses on the way the topic of migration and migrants is interpreted in the Earth and Age media in the 2020-2024 timeframe. In this respect, in our paper we will refer to the Earth and Age media as alternative media and not disinformation media. The aim of the paper is to analyze how the mentioned medium approaches the issue of migration, how it interprets it to its readers. The text in no way accepts the information and opinions of the Earth and Age media as true and opinion-forming; it only serves as a source for the research of alternative media in our project and the analysis of their texts.

[8] American Psychological Association (2024): How and why does misinformation spread?

1 Literature review on alternative media

We first encounter the term alternative media in the 1960s and 1970s, and it is related to social movements of the time that sought to create a counterpoint to the traditional media. These were initiatives associated with the progressive left of the ideological spectrum and efforts to create participatory structures in the media of the time. However, what we can consider as a common feature with the present is that it was primarily about increasing attention in views that were perceived as absent in mainstream media coverage.[9] Therefore, in those times, but also later, the perception and research on alternative media in the scientific and academic community was mainly focused on media with a strong left-wing orientation. Among other things, alternative media were seen in the past as a chance to overcome strong hegemonic structures and to democratize media systems.[10]

Although researchers agree and state that the term alternative media is generic and defies simple definition,[11] the most common and simple definition of alternative media remains that it is "not mainstream".[12] However, this general approach of defining alternative media by what it is not, rather than what it is, has catalysed different perspectives of definition based more specifically on a common integration of considerations of content, distribution, processes and ideology.[13]

Although the term alternative media first appeared in the 1980s, scholars still disagree on what definition should frame alternative media. The temporal approach to the issue also differs. As noted above, since the middle of the last century, scholars have considered alternative media to be more left-leaning with the purpose of disseminating information that was absent in the mainstream media. Today, the scholarly community perceives the complexity of grasping the dimension of alternative media. Some scholars divide alternative media into non-, pseudo- and semi-professional news, which pursue different ideological goals, and their "alternativeness" manifests itself in different political and cultural contexts.[14]

Holt, Figenschou and Frischlich define alternative media as: "proclaimed and/or (self)-proclaimed corrective, opposing the overall tendency of public discourse emanating from what is perceived as the dominant mainstream media in a given system."[15] In the same way, we observe in the scholarly community on the issue of grasping alternative media the identification of criticism of the mainstream media, which tends to be expressed implicitly or explicitly, mildly or aggressively, randomly or systematically, and can be directed at individual journalists or an institution.[16]

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[9] DAGRON, A. G. (2004): The long and winding road of alternative media, pp. 41-64; HARCUP, T. (2019): Alternative journalism; WIMMER, J. (2015): Counterpublic.

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[12] COMEDIA (1984): The Alternative Press: The development of underdevelopment, p. 95.

[13] RODRIGUEZ, C. (2001): Fissures in the mediascape: An international study of citizens' media, p. 15.

[14] CUSHION, S. – MCDOWELL-NAYLOR, D. – THOMAS, R. (2021): Why National Media Systems Matter: A Longitudinal Analysis of How UK Left-Wing and Right-Wing Alternative Media Critique Mainstream Media (2015–2018), pp. 633-652; MCDOWELL-NAYLOR, D. – CUSHION, S. – THOMAS, R. (2021): A Typology of Alternative Online Political Media in the United Kingdom: A Longitudinal Content Analysis (2015–2018). In *Journalism Studies*. 146488492110595.

[15] HOLT, K. – USTAD FIGENSCHOU, T. – FRISCHLICH, L. (2019): Key dimensions of alternative news Media, pp. 860-869.

[16] CUSHION, S. – MCDOWELL-NAYLOR, D. – THOMAS, R. (2021): Why National Media Systems Matter: A Longitudinal Analysis of How UK Left-Wing and Right-Wing Alternative Media Critique Mainstream Media (2015–2018), pp. 633-652; MAYERHÖFFER, E. (2021): How Do Danish Right-Wing Alternative Media Position Themselves against the Mainstream? Pp. 119-136; ROBERTS, J. – WAHL-JORGENSEN, K. (2020): Breitbart's Attacks on Mainstream Media: Victories, Victimhood, and Vilification, pp. 170-185.

Since criticism of the perceived mainstream is often the editorial driving force behind the production of alternative media, this raises the empirical question: to what extent and in what ways does "alternative" represent something other than "mainstream". Holt, Fihenschou and Frischlich observe alternative media at three levels - macro, meso and micro.[17]

Nowadays, alternative media are not only found among left-leaning readers, but also among right-leaning readers. Actors in these aforementioned media view the established news media as not representing a sufficient diversity of views.[18] However, an important question remains whether, despite the criticism of the established news media, alternative media meet the ideal of representing different views, and in particular to what extent. This issue has been addressed by the scholarly community, specifically how to measure this diversity and the normative function of media diversity in democratic states.[19] The media, whether mainstream or alternative, play a crucial role in a democratic society, namely to provide the information necessary for citizens to be informed about events taking place in the country they live in and around the world. According to Helberg, the media should represent a diverse public by embracing a range of actors, ideas and opinions, making a pluralistic society visible and therefore discussable and negotiable.[20] However, the question remains as to what information the alternative media provides, with what purpose, how it is provided, and whether it contradicts scientific facts, historical facts, and whether it incites violence against others.

2 Image of migration in alternative media. Case of "Earth and Age" (Zem a vek)

As mentioned in the introduction, the paper analyses the way information regarding migration is presented in the medium of Earth and Age. This is a periodical that has been labelled as disinformation by several organisations, but we will call it alternative in this paper, as the scientific community does not define the term disinformation media. Earth and Age (Zem a vek) is published in print as a magazine and online as an information medium, covering various topics related to the Slovak Republic, as well as world events. In our paper, we analyse articles published from 2020 to 2024 that deal with the issue of migration not only in Slovakia, but also in the EU and possibly in the world.

The analysis of the articles showed that in the period 2020-2024, Zem a Vek writes in most cases about illegal migration or illegal migrants. It mentions in most cases the destructive acts that certain migrants have done or caused. In the texts that contain these acts, the authors of the texts use pejorative lexis to underline or influence the reader's reception of this information, such as "how to burn, kill, rob in a brutal way, gangs, drug activity, prostitution, abuse, and so on." The topic of migration is presented in the articles only in a negative way, when the authors of the texts point only to the disadvantages of migration, violent acts committed by migrants, or illegal activities such as illegal border crossings. The topic of labour migration or brain drain does not appear in the articles. After reading articles on migration, the reader may get the impression that migration embodies a negative impact on society and is only caused by violence and illegal activities. The positive side of migration, its impact on the economy of the receiving countries, demography, intercultural communication, etc., is completely absent from the texts.

[17] HOLT, K. – USTAD FIGENSCHOU, T. – FRISCHLICH, L. (2019): Key dimensions of alternative news Media, pp. 860-869.
[18] HOLT, K. (2020): Right-Wing Alternative Media; RAUCH, J. (2019): Right-Wing Audiences for Alternative Media: Comparing Progressive and Conservative Attitudes towards Journalism.
[19] GLEN, B. – De GROVE, F. – Van DAMME, K. – De MAREZ, L. (2020): News Diversity Reconsidered: A Systematic Literature Review Unraveling the Diversity in Conceptualizations, pp. 1893-1912.
[20] HELBERGER, N. (2019): On the Democratic Role of News Recommenders, pp. 993-1012.

Analysis of the texts shows that the medium of Earth and Age (Zem a Vek) uses a more sophisticated way of presenting information than in the past. Nowadays, the authors of the texts stick to the facts, even mentioning the sources from which they draw, and in most cases these are credible sources. However, what was explicit when comparing the articles they draw from and those they report to their readers was that only selected information was reported. The majority of the articles are mainly negatively tinged information and lack a more extensive approach to the issue at hand or highlighting the circumstances that took place.[21] As noted above, the articles deal only with irregular migrants, or rather the authors use this label in particular. Terms such as legal migration or refugees are conspicuously absent from the articles.

Texts dealing with the issue of migration overwhelmingly use religious overtones in their portrayal of foreign migrants, which can evoke fear in Slovak society. Articles written about Muslim migrants from Islamic countries,[22] or about migrants from the African continent,[23] where we can talk about skin tone, as each article is accompanied by a photo. In the case of photographs, the sources from which the authors of the texts draw them are always mentioned, but during the analysis of the articles we noticed the use of photographs showing migrant men with coloured skin.[24] Noticeably absent from the photographs are women and children. This can be attributed to the fact that there is an intimidating narrative around migrants in Slovakia, that they are overwhelmingly men who come to Slovakia for the purpose of stealing, abusing social benefits, or intimidating women by committing violent acts against them. The texts in the media under study subliminally convey this image of migrants coming not only to Slovakia, but also to the entire European Union.

When analysing texts on migration, we were able to indirectly identify the "enemy", or the person, institution or organisation that has often been criticised, labelled as failing to address irregular migration, wrongly advocating for the rights of refugees or migrants, or taking the wrong actions that lead to violence, according to the authors. In the articles, this has proceeded in a way that the authors have truthfully reported the statements of leaders of major institutions who have stood up for the human rights to which refugees or migrants are entitled, but have supplemented this with negative or violent events caused by migrants anywhere and anytime in the world. The reader may thus get the impression that these representatives are wrongly advocating for migrants or refugees, providing them with financial assistance unjustly and at the expense of the indigenous population.[25] Of the foreign institutions and their representatives, the European Union has been referred to in this way,[26] OECD, UN,[27] where appropriate, government representatives of specific countries. Thus, the reader may get the impression from the above articles that these organisations are wrongly advocating for migrants or refugees, or supporting them financially or commoditatively, wrongly and at the expense of the receiving societies. As an example, if they report on an EU official who has received a human rights award because he or she has taken in refugees during military conflicts, they are reporting truthfully, but this information is supplemented by fear-mongering

[21] RICHTER, A. (2023): Migranti ničia budovy a autá a policajti sa na nich nečinne pozerajú; HORVÁTH, J. (2021): Kostol vo švédskej „no-go zóne" opäť atakovaný zápalnými fľašami.
[22] STRÁŽAN, R. (2020): Migranti v Grécku zatknutí po vykradnutí kaplnky. Vlna útokov na kresťanské symboly pokračuje.
[23] RICHTER, A. (2023): Eritrejskí migranti v Nórsku spôsobili vlnu násilností.
[24] DVORSKÁ, D. (2023): Migranti si v amfiteátri urobili oheň, okúpali sa v súkromnom bazéne; HORVÁTH, J. (2021): Aktivisti držia hladovku, aby sa migranti v Calais mali lepšie; RICHTER, A. (2023): Eritrejskí migranti v Nórsku spôsobili vlnu násilností.
[25] DVORSKÁ, D. (2023): K brehom Lampedusy priplávalo viac ako 4 tisíc moslimských migrantov; RICHTER, A. (2023): Preplnená Lampedusa, viac migrantov ako miestnych; HORVÁTH, J. (2021): Nemecké riešenie migrácie je jednoduché. Postavme viac táborov!
[26] RUSNÁK, E. (2021): Dvojaký meter európskej migračnej krízy; RUSNÁK, E. (2021): Analytik Marat Markov: Bielorusko bolo prednou strážou EÚ a chránilo jej hranice a Brusel mu napľul do tváre.
[27] HORVÁTH, J. (2022): Komisár OSN pre utečencov tvrdí, že prísne hraničné kontroly sú „rasistické".

information about how the human lives of Europeans are being threatened by migrants, but the specific cases where they have been threatened and in what way are absent from the article.[28]

Non-governmental organisations (NGOs) that help refugees in European Union countries, either medically or in respecting basic human rights, are also described as the enemy in the articles. The Earth and Age (Zem a vek) media refers to them with pejorative names such as "migrant taxis to Europe,"[29] or that they are funded by "Brussels and foreign sources"[30] and underlines this with information about acts of violence by migrants in Europe. In this way, the media belittles their work, or the reader may get the impression that helping migrants is something undesirable, which may result in negative events.

In the same way, the authors of the texts use labels for the EU countries, or the EU as an organisation itself, "Brussels" or "Brussels dictate" when they criticise or ridicule the actions of this organisation. They also refer to liberals and democrats as the enemy, and these names are always written in quotation marks, which convey the inferior meaning of these words.[31]

During the analysis of the texts, we identified a certain number of articles where negative attitudes towards migrants are highlighted. If a country adopts a law or measures that restrict migrants' access to the country, or reduce their social benefits, or deport irregular migrants to their home country, these actions are described in the articles as correct.[32] As noted above, the articles are notably absent in highlighting the steps that the EU or other organisations or EU governments would take. When articles do respond positively to actions taken by EU governments, it is always against migrants.[33]

When analysing the text length of articles in "Zem a Vek", which deal with migration issues, we identified a shorter text length than in articles in traditional media. We suggest that the aim may be to adapt to the trend of information reception, namely short text or video. The second reason may be that these are not traditional articles in terms of scope, but rather short reports where the author of the text is not even mentioned. Articles with larger scope have the authors' names listed, but the difference between shorter reports and articles with authors is noticeable in a significant way, especially in the lexis. Specific authors use similar pejorative lexis on the topic of migration, the steps taken to help migrants are written in quotation marks to devalue their meaning, and they also use derisive lexis, often not in keeping with journalistic style.[34] The authors call the working procedures, the steps taken by EU officials on migration issues, or visits to various centres that provide accommodation for migrants "trips" in order to degrade their actions.[35] Another interesting common feature of most articles is that the title does not correspond to the content of the text. An example is the earthquake in Turkey and Syria, where there is no mention of the earthquake and its effects on the population. The article only provides the floods of people seeking refuge in the EU, but the context of the event is absent from the text.[36]

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[28] HORVÁTH, J. (2023): Merkelová dostala cenu mieru OSN za „otváranie dverí" migrantom.
[29] HORVÁTH, J. (2022): Mimovládne „taxíky migrantov" priviezli tento rok do Európy 10 tisíc ľudí.
[30] HORVÁTH, J. (2021): Aktivisti držia hladovku, aby sa migranti v Calais mali lepšie.
[31] RUSNÁK, E. (2020): Brusel chce, aby migranti boli „presídlení" do všetkých krajín EÚ.
[32] HORVÁTH, J. (2022): Britská armáda bude stavať bývanie pre nelegálnych migrantov.
[33] HORVÁTH, J. (2022): Briti sa búria proti táboru migrantov: Bude to zničenie nášho spôsobu života!; RUSNÁK, E. (2021): Lotyšsko odmieta prijímať migrantov, na hranici s Bieloruskom stavia plot; RICHTER, A. (2023): Švédsko bude chcieť od migrantov, aby viedli čestný spôsob života; HORVÁTH, J. (2021): Jimmie Akesson: Masová migrácia „zničila" Švédsko.
[34] HOLUBOVÁ, A. (2024): Kolaps nemeckého sociálneho štátu, migrácia dôchodky nezachráni.
[35] RICHTER, A. (2023): Migračný chaos v Taliansku.
[36] HORVÁTH, J. (2023): „Nenechaj krízu nevyužitú": Nemecká vláda využíva zemetrasenia ako výhovorku na oslabenie hraníc.

In most cases, the articles calculate the numbers of incoming migrants, using expressions such as "thousands, millions, huge numbers, the number has increased several times over", but the exact numbers before and after are absent.[37] If the exact number of incoming migrants is given, it is always a high number.

Conclusion

News in the Earth and Age media resembles social media posts or short commentaries rather than traditional newspaper articles in terms of scope. Which is also related to a trend we've been seeing in recent years that has come with social media, which is that people prefer short-form, time-limited posts. Also, the actual articles where the author is mentioned are shorter in scope than traditional media articles. The conclusions we came to during our research are that, despite citing sources, the articles lack a deeper dive into the issue of migration.

The lexis used by the authors of the articles is highly pejorative, often using quotation marks to discredit the aforementioned decisions taken by various world organisations, such as the EU, the UN, the OECD and so on. The lexicon is derisive in portraying the practices of these organisations. The media sees the Earth and the age as the enemy in EU officials, NGOs or the governments of specific states, insofar as their actions have led to aid for migrants. Absent is the topic of legal migration, labour migration, or the influx of highly skilled professionals and the positive impact on the economic or demographic sphere. In most cases, the articles mainly portray to their readers the violent or criminal activities of migrants in Europe, with the result that the articles may evoke negative emotions such as fear and anger in the readers. The topic of labour migration and its impact on the economy and demographics of countries is absent from the texts. In the same way, the topic of migration of highly skilled workers is absent. The articles are highly critical of the measures taken by the EU, criticising the statements made by representatives of organisations such as the OECD, the UN and the aforementioned EU. The articles on migrants focus on those who come to the EU from the African continent and the Middle East, portraying them as Muslims who come to the EU to abuse social benefits, to carry out illegal activities, or to engage in criminal activities. Women and children as migrants are absent from the texts.

In the paper we called Earth and Age an alternative medium, since the scientific community explicitly uses this name, instead of the disinformation medium that appears in the Slovak narrative. The medium Zem a vek meets several features of alternative media such as - offering a different perspective than the traditional media, criticizing the EU, criticizing liberalism and democracy and traditional media.

To summit up, Media Eart and Age wrote about migration and migrants more sophisticated. It avoids misinformation, but the authors precisely choose what to write about, in which words, which facts mention to their readers and which to withhold. The articles are directed strict against the migration and they intentionally do not write about economic migration, highly qualified professional migrants, human rights etc.

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EVALUATING MARKET STRUCTURE IN SLOVAK INDUSTRIES

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Abstract: The article provides descriptive statistics of the concentration of industries in Slovakia, specifically those demanding significant capital investments. The findings reveal a noteworthy level of concentration across various Slovak industries, with manufacturing standing out prominently.
Keywords: concentration, HHI, manufacturing
JEL: D22, D43, E24

Introduction

The Slovak economy has experienced significant shifts from its transformation period, marked by privatisation and government investments, to reforms aimed at aligning with advanced European economies. However, following the financial and investment crises, the economy faced challenges, including labour shortages and limited foreign capital inflows, exacerbated by recent economic shocks and a global growth slowdown with rising inflation.

During the financial crisis, the previously successful market development suffered, losing competitiveness gained through reforms. This loss was particularly evident in the reduced productivity and competitiveness of firms due to decreased foreign investment. This paper examines firm concentration in Slovak markets from 2014 to 2019, coinciding with the investment crisis.

The study explores increasing overall market concentration and the emergence of superstar firms, which wield significant market power, impacting the economy's structure and labour market. It discusses the causes and effects of market concentration, noting its influence on competitive dynamics and employment indicators, particularly in capital-intensive sectors.

The findings reveal a noteworthy concentration level across various Slovak industries, with manufacturing standing out prominently.

1 Literature review

In recent years, a growing trend in firm concentration has been observed. Gutiérrez et al. (2018) highlight the changing ratio of positive and negative benefits of concentration in the United States over the last 30 years.[1] De Loecker et al. (2020) emphasize the different impacts of increasing concentration on the US economy, suggesting a link between rising margins and firms' market power emergence.[2] Berry et al. provide a comprehensive view of factors influencing margin increase due to rising concentration.[3] Cavalleri et al. (2019) assess

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these aspects within the Eurozone, noting varying concentration evolution across economic sectors.[4] Peciar (2021) offers insight into margin increase and market power emergence in the Slovak economy.[5]

The effects of increasing concentration are analyzed by Philippon (2018)[6] and Sutton (1991),[7] particularly regarding firm investment and the impact of fixed costs on firms' market shares increase. Ganapati (2021) provides a comprehensive correlation between concentration growth and selected indicators, finding the source in productivity and its varied effects on firm-level indicators.[8]

Autor et al. (2017,[9] 2020[10]) discuss the disproportionate evolution of employment to output due to the rise of "superstar firms". Morvay (2020) examines the Slovak labor market, highlighting differences in productivity growth and wage costs among firms.[11]

Increasing concentration in narrowly defined sectors is a concern. Autor et al. (2017) attribute this largely to market share reallocation towards large, productive firms.[12] Ganapati (2021) notes a significant regression of the largest US firms over 40 years, with substantial market share gains by the top four firms in various industries.[13]

Philippon (2018)[14] and Covarrubias et al. (2019)[15] corroborate these findings, observing a positive trend in concentration evolution. Cavalleri et al. (2019) note stagnation in concentration rates in Eurozone countries but observe gradual increases in industrial sectors.[16]

Concentration's impact on the labor market is significant. De Loecker et al. (2020) suggest an inverse relationship between margin increase and labor share due to firms' optimization decisions.[17] Autor et al. (2017)[18] find that lower relative technology prices drive capital adoption, reducing labor shares.[19] Morvay (2020) highlights productivity and wage differences among firms in the Slovak manufacturing sector, advocating for productivity transfers to sustainably raise wage levels.[20]

2 Methods

To obtain data for calculating the concentration of production of individual markets, we use Finstat database, an online platform providing financial and legal data on firms, which suits our data collection requirements. In total, we retrieve 415 thousand of firm records. Each record is unique, consisting of an organisation identification number (abbreviated as an ID number), the company's business name, the company's financial year, the industry code of the primary

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[17] DE LOECKER, J. et al. (2020): The Rise of Market Power and the Macroeconomic Implications, pp. 562-593.
[18] AUTOR, D. et al. (2017): Concentrating on the Fall of the Labor Share, pp. 185-180.
[19] Ibidem.
[20] MORVAY, K. (2020): Slovenská ekonomika na ceste od nedostatku práce k nedostatku jej produktivity.

business, and information on the revenue generated. The retrieved database contains only records of privately owned firms. Therefore, we do not further work with data of publicly owned organisations, such as budget organisations.

Other sources are the Statistical Office of the Slovak Republic (abbreviated ŠÚ SR) and the Ministry of Finance of the Slovak Republic (abbreviated MF SR), which provide data for employment analysis. The database of the Slovak Statistical Office provides us with comprehensive data on the number of employees operating in the territory of the Slovak Republic, according to the classification of economic activities. We also use individual company data on the number of employees we obtain from the Register of Financial Statements database administered by the MF SR. The Register is a public administration information system established by Act No. 431/2002 Coll. on Accounting, as amended. From the individual financial statements and annual reports, we obtained data on the average number of employees in selected companies, according to the methodology of the Slovak Statistical Office based on Act No. 311/2001 Coll. (Labour Code as amended). In the next step, it is necessary to define the relevant markets in which the observed firms operate.

Defining markets and economic sectors, and industries is a key part of the work. A large variation can lead to bias in the observation results. Several approaches to defining and segmenting relevant markets can be found in the literature, with authors finding several problems during this research phase. We only use data for 2014 and 2019, which means that we do not face the problem of data unavailability or the problem of changing industry definitions, as in Autor et al. (2020),[21] Ganapati (2021)[22] or Covarrubias et al. (2019).[23] The authors use the SIC (Standard Industrial Classification) and NAICS (North American Industry Classification System) economic activity classification systems to define markets. Both classifications undergo periodic revisions, which has caused biases to bias in the results, especially in the case of Ganapati (2021)[24] and Covarrubias et al. (2019).[25] In the European area, the harmonised NACE Rev. 2 classification is used, followed by Peciar (2021)[26] and Cavalleri et al. (2019).[27]

Another problem in defining markets is determining the firm's primary market, especially when the firm operates in more than one market. According to Cavalleri et al. (2019),[28] a comprehensive definition of the relevant market considers the degree of product substitution, transportation costs, and the geographic location of producers and consumers. However, the basic assumption is that firms sell a single well and serve a single industry. The presence of multi-product firms is likely to be a source of distortion if a firm sells products that are not close substitutes. In Slovakia, each firm is registered in the Commercial Register of the Slovak Republic according to the market of its primary operation, with the registration of the firm's affiliation being carried out by the Slovak Statistical Office. Firms belonging to the same parent company may be incorporated in different industries.

The most important part of the process is the sectoral breakdown of the defined markets. We follow the sectoral breakdown of Autor et al. (2020)[29] but use the SK NACE Rev. 2

[21] AUTOR, D. et al. (2020) The Fall of the Labor Share and the Rise of Superstar Firms, pp. 645–709.
[22] GANAPATI, S. et al. (2021): Growing Oligopolies, Prices, Output, and Productivity, pp. 309-327.
[23] COVARRUBIAS, M. et al. (2019): From Good to Bad Concentration? U.S. Industries Over the Past 30 Years, pp. 3-6.
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[26] PECIAR, V. (2021): Empirical Investigation into Market Power, Markups and Employment, pp. 8-11.
[27] CAVALLERI, M. et al. (2019): Concentration, Market power and Dynamism in the Euro Area.
[28] AUTOR, D. et al. (2017): Concentrating on the Fall of the Labor Share, pp. 185-180.
[29] COVARRUBIAS, M. et al. (2019): From Good to Bad Concentration? U.S. Industries Over the Past 30 Years, pp. 3-6.

classification We identify seven economic sectors: Agriculture and Forestry (Divisions 01 to 03), Industry (Divisions 05 to 39), Construction (Divisions 41 to 43), Retail and Wholesale Trade (Divisions 45 to 47), Logistics and Real Estate (Divisions 49 to 53 and 68), Financial Services (Divisions 64 to 66 and 77, including Class 92 of Division 82) and Services (Divisions 55 to 63, 69 to 75 and 78 to 99).

We follow an identical procedure for identifying industrial sectors. According to the SRS (2007), the main industrial activity is determined according to the registered affiliation of the organisation to divisions 05 to 39. According to the Ministry of Economy (2011), the dividing line between some sectors cannot be determined precisely, so we use a simplified view of the SK NACE divisions. We divide the markets into ten industrial sectors as follows: Food processing (divisions 10 to 12), Textiles (divisions 13 to 15, including class 03 of division 31), Wood processing (divisions 16 to 18 and 31), Chemicals (divisions 19 to 23), Metallurgy (divisions 24 and 25), Electrotechnical industry (Divisions 26 and 27, including Classes 13, 14 and 19 of Division 33), Engineering industry (Divisions 28 to 30 and 33), Other industry (Division 32), Energy and mining industry (Divisions 05 to 09 and 35), Waste and water industry (Divisions 36 to 39).

We have chosen several indicators to determine the concentration of individual industries and sectors. Still, all of them are based on the concentration ratio CR_n, where the size of firms is determined by their sales TR_i. Concentration ratio CR_n represents the sum of the market shares C_i n of the largest firms of the observed sample i-th the number of firms in the ranking, sorted by size.

$$CR_n = \sum_{i=1}^{n} C_i \,;\, n, i \in N^* \tag{1}$$

where

$$C_i = \frac{TR_i}{\sum_{i=1}^{\infty} TR_i} \,;\, i \in N^* \tag{2}$$

The most used index in calculating the concentration ratio is 4, i.e. the sum of the market shares of the four largest firms in the observed market, which is the index we are also inclined to use. We calculate the industry concentration rate of the four largest firms CR_4 for each industry and observation period separately. We do not include industries in which no firm was in a given year in our calculations and do not work with them further. Based on the results of CR_4 for two different years, we construct a dot plot following Cabral (2000).[30]

3 Results

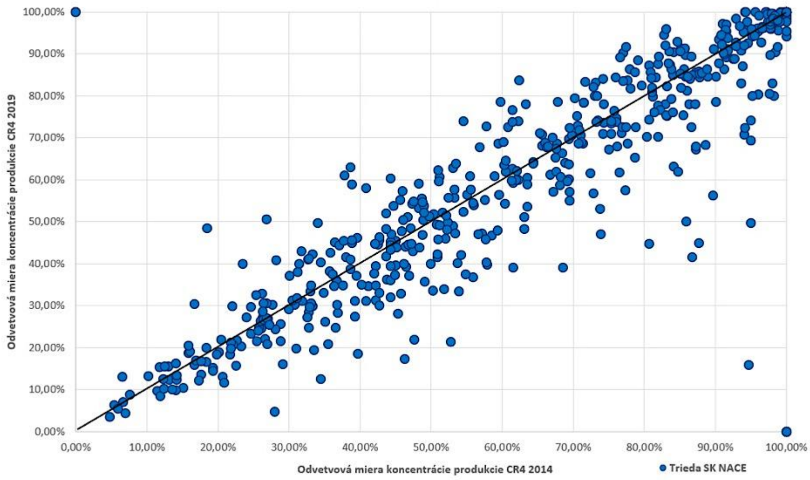
The average industry in the Slovak economy in 2014 had a concentration ratio (CR_4) of 67%. The arrangement of the individual industries in Figure 1 indicates a large number of monopolistic and oligopolistic structures, with relatively stable values in both years under review. Such industries are mostly found in the heavy industry sectors.

On the other hand, we observe a small number of industries that can be characterised as more competitive market structures. These are mainly characteristic of the construction, agriculture and forestry sectors but also of selected service sectors. Perhaps the largest group of sectors can be characterised as relatively concentrated markets with high-value volatility CR_4. These industries are populated by firms whose market shares vary significantly, mainly due to the high turnover of firms, reflecting low entry barriers. Other factors for high volatility may be the low interest of large firms to enter a given market. In these sectors, we find a high

[30] CABRAL, L. (2000): Introduction to Industrial Organizations, pp. 241-247.

share of small and medium-sized enterprises or SMEs. These market structures are typical, particularly for the service or light industry sectors, possibly construction.

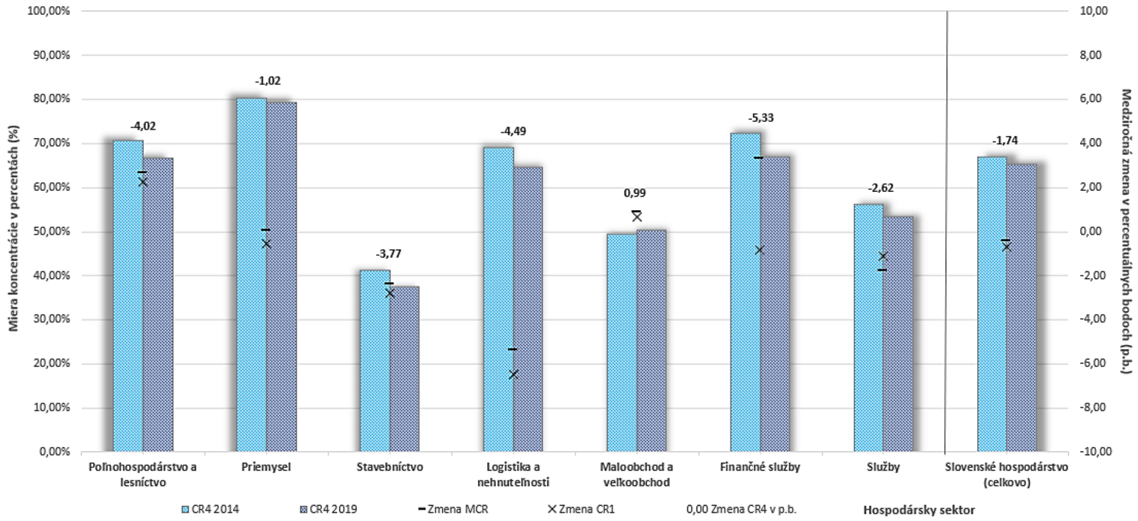
Figure 1: Changes in the sectoral level of output concentration in the Slovak economy



Source: Finstat, own elaboration, 2021

The declining average concentration of markets can be considered a positive phenomenon. Between 2014 and 2019, the sectoral concentration ratio (CR_4) decreased by 1.74 p.p. (Figure 2), with a decrease in CR_4 in all sectors except the Retail and Wholesale sectors. An equally important finding is the decline in the average market share of the largest firm (CR_1) and the shrinking average distance of the market leader from the largest competitor within the industry (MCR). The decline in MCR is more moderate than the decline in CR_1, indicating a slight decline in average market share even for the second largest firm. We note considerable sectoral heterogeneity in concentration, and therefore the effects of changes in concentration are likely to be felt in different intensities.

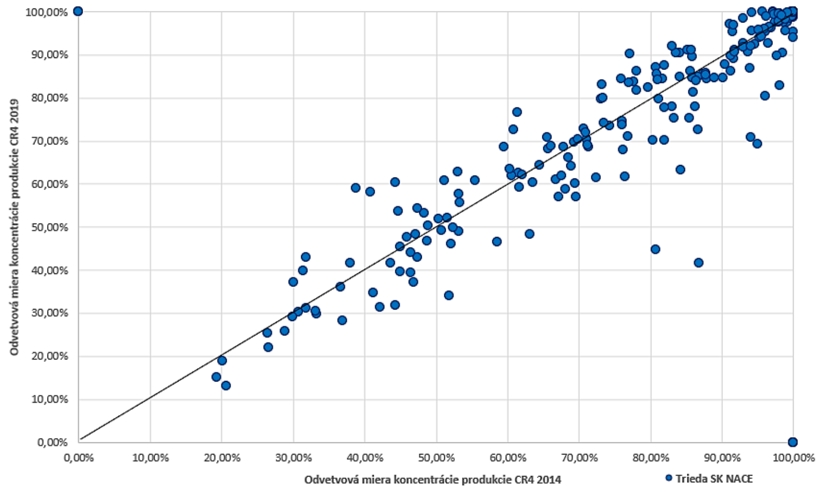
Figure 2: Overview of output concentration indicators in economic sectors



Notes: Change CR_1, CR_4 a MCR are based on the base year 2014.
Source: Finstat, own elaboration, 2021.

The manufacturing sector is characterised by the highest level of concentration in the Slovak economy. The average concentration rate (CR_4) reached 79.25% in 2019, with a decrease of 1.02 p.p. compared to the 2014 value. Figure 2 shows more volatility in CR_4 than that of the Agriculture and Forestry sector, with decreases in CR_4 being more pronounced than increases, which caused the overall average decrease between periods. The arrangement of sectors on the graph indicates a high proportion of highly concentrated sectors. Dividing the graph into 10 per cent intervals, we observe an increasing number of industries for the intervals representing higher concentration.

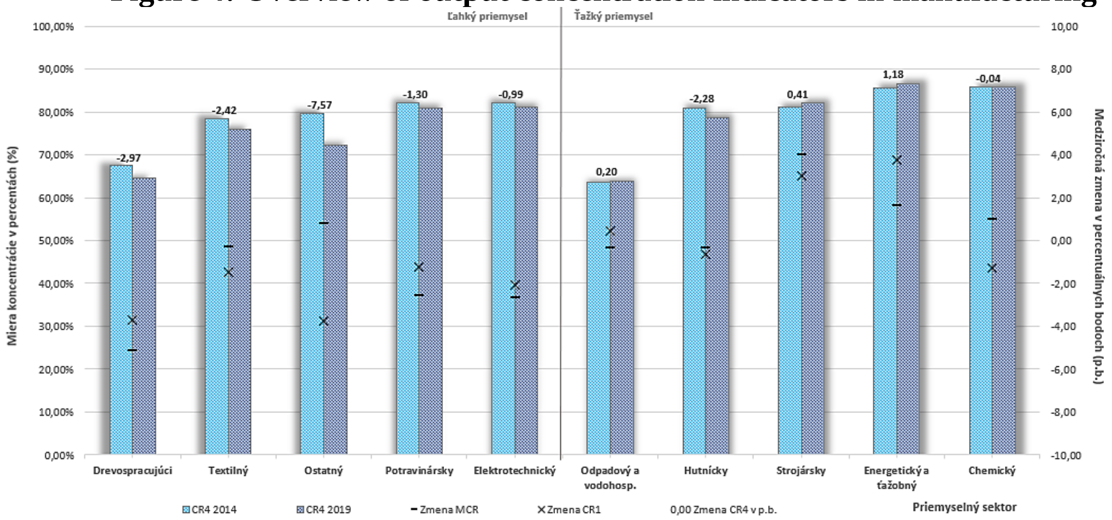
Figure 3: Changes in the sectoral level of output concentration in manufacturing



Source: Finstat, own elaboration, 2021.

In the manufacturing, we observe two distinct trends in terms of manufacturing concentration (Figure 3). While in the heavy industry, we observe a higher concentration level (CR_4) and its increase in the period under review, in the light industry, there is a decline in concentration indicators despite their high initial values.

Figure 4: Overview of output concentration indicators in manufacturing



Notes: Changes in CR_1, CR_4 a MCR with respect to the year 2014.
Source: Finstat, Statistical Office of the Slovak Republic, own elaboration, 2022.

Conclusion

The results of the empirical observations of concentration point to a significant similarity of the Slovak economy to the results from Cavelleri et al. (2021)[31] and Philippon (2018)[32] on the evolution of the concentration of the single European market. Moreover, the European market has different dynamics and structure than the US economy. In the Slovak markets, we observe a relatively high concentration within some industries or sectors compared to the values of large European economies. Still, this value often does not reflect the actual structure of the markets, especially due to the nature of the Slovak economy as a very open economy with a small internal market. Slovak markets have experienced an average decline in concentration between 2014 and 2019, with changes in individual sectors that can be described as moderate, which is in line with the set of large European economies. Based on our observations, we reject the scenario, according to De Loecker et al. (2020),[33] of continuously increasing aggregate market concentration.

However, another phenomenon of the American markets, the appearance of so-called superstar companies, can be found in the Slovak markets. We agree with Autor et al. (2020)[34] on the occurrence of highly productive firms, especially in capital-intensive sectors.

One of the possible reasons for the increasing concentration of Slovak markets is the presence of multinational corporations with global production chains that can achieve economies of scale through cost optimisation while shifting production capacity to markets with cheaper inputs (Berry et al. 2019,[35] Dudáš 2017[36]). Firms are gaining productivity and market power to which domestic firms cannot respond. We identify such a situation, especially in Slovak industries.

As a result of the increase in market shares towards large, productive firms and their declining labour share, we expect an increase in margins for superstar firms. The development of the average aggregate margin in Slovak markets is questionable. We share the views of De Loecker et al. (2020)[37] on the evolution of margins, assuming an increasing trend. Still, we cannot predict the intensity of the increases in individual markets. We also agree with the views of Ganapati (2021),[38] particularly regarding the positive correlation between firm concentration and productivity growth and the negative correlation with labour share. More detailed data on the costs and returns of individual firms and observations over a longer period are necessary to analyse the impact of concentration in relation to changes in aggregate margins. A similar analysis merits research of its own and is a topic for a continuation of this paper.

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CHINESE INVESTMENT STRATEGY AND ITS INFLUENCE ON GERMAN PUBLIC OPINION

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Abstract: This paper examines the economic and geopolitical implications of Chinese investment abroad, with a focus on the Belt and Road Initiative (BRI) and its impact on global trade and infrastructure development. Specifically, it analyzes China's investments in Germany and the European Union, assessing the balance between economic growth and geopolitical strategy. Through quantitative analysis, the study explores the correlation between Chinese FDI in Germany and German public opinion towards China, highlighting the nuanced relationship between economic policy, public perception, and legislative responses to foreign investment. This investigation underscores the complex dynamics of China's global economic ambitions and their reception in host countries.
Keywords: China, Germany, investments, public opinion
JEL: P45

Introduction

After Deng Xiaoping took over the leadership of the People's Republic of China, there have been economic reforms in China, corrections, but above all a gradual opening up to the whole world. The gradual opening up of special economic zones, the promotion of private enterprise and the efforts to liberalise trade, partly achieved by China's accession to the WTO, have given rise to a debate as to whether China will continue to open up to the world and the West, not only in economic but also in political and social aspects. The notion of capitalism with a Chinese face also entered the discourse, which spoke of Marxist socialism in the form of control over selected sectors of the economy, combined with market reforms recognising market mechanisms.

However, the opening of the Chinese economy to the world may not have met all the prerequisites, and the Western world is currently facing a debate as to whether China's economic and political rise poses a risk of China's increasing power abroad, in strategic locations in the world, or in developing and developed countries. One of the strategies it is employing is the Belt and Road Initiative, an ambitious project that already involves 138 countries from around the world.

Yiping Huang of Peking University divides the goals of the Belt and Road Initiative into several categories. He argues that at the heart of the initiative is China's desire to sustain economic growth through new forms of international trade cooperation. This is because the aforementioned economic reforms launched under Deng Xiaoping's leadership have brought China great economic growth based mainly on exports to developed economies and the receipt of foreign direct investment from developed economies as well.[39] Xinming Xia of Peking University argues that these efforts were accelerated after China's entry into the World Trade Organisation in 2001, when China increased its emphasis on innovation, science and research to keep Chinese firms competitive. This strategy was also reflected in the 5-year plans between

[39] HUANG, Y. (2016): Understanding China's Belt & Road Initiative: Motivation, Framework, and Assessment, pp. 318-319.

2001 and 2010 and was based on increasing China's FDI abroad to, among other things, access foreign know-how, strengthen innovation capacity and tap into global value chains.[40] Since around 2010, however, China's economic growth rate has been moderating, making it advantageous for China to seek economic opportunities elsewhere in the world to further boost its economic growth. According to Huang, complementary to this strategy is the drive to improve connectivity through various infrastructure projects, which play a fundamental role in the Belt and Road Initiative. The infrastructure arm of the initiative includes the construction of expressways, railways, ports, oil and gas pipelines, and telecommunication links.

It is also important to note the paradigm shift in the choice of recipient country. It was mentioned at the beginning of this article that at the beginning of the millennium, FDI was directed to developed Western countries in order to acquire know-how. However, we are now witnessing a phenomenon where countries are also being selected on the basis of the opposite factors. In a quantitative analysis, Le Chang of the University of Malaya shows that there is a strong negative correlation between Chinese investment and the technological skills of the recipient country. This implies that Chinese investment may no longer be focused on acquiring technological assets from abroad. In contrast, a strong correlation is observed when there are mineral reserves in the recipient country.[41]

1 Investment in the West

The economic objectives highlighted in the previous chapter indicate China's interest in further economic growth through the acquisition of new markets, partnerships with low- to middle-income countries, and also access to mineral resources. Eastern authors, such as Xuejun Liu of Renmin University in China, see the Belt and Road Initiative as an economic project to meet the economic goals outlined in the previous chapter, but also as evidence of a shift in global economic centres that are shifting back east with China as their epicentre. He argues that the initiative is aimed at increasing connectivity, inclusion and sustainable development and not geopolitical goals as seen by the West-Centric society.[42]

However, the nature of the initiatives, loans and partnerships also suggests a pursuit of geopolitical, military and political interests. First and foremost, it is a tool to achieve China's geopolitical objectives as a continental and maritime power. China seeks to create a strategic and economic alternative to the US-led international order and thus, overall, to create a counterbalance to US hegemony in the Eurasian continent as well as in the Indo-Pacific.[43] It is there that China has been seeking to establish relations with the Pacific States over the last decade, through the aid and development projects already mentioned, but also through the establishment of diplomatic relations and security cooperation. A significant event was the conclusion of a security agreement between China and the Solomons in 2022, which raised concerns about the establishment of the first military base in the region. However, US interest in the region is also marked, as evidenced by the imminent visit of Vice President Kamala Harris to the Solomons, and the reopening of the US embassy.[44] Palau, one of the islands in the Indo-Pacific, requested US assistance in deterring Beijing's unwanted activities in its

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[43] CLARKE, M. (2018): The Belt and Road Initiative: Exploring Beijing's Motivations and Challenges for its New Silk Road, p. 91.
[44] THE GUARDIAN (2021): China's rising power and influence in the Pacific explained in 30 seconds.

coastal waters, which was granted by the US.[45] These and other examples illustrate the US interest in maintaining influence over the region but, more importantly, show that China is not only seeking economic cooperation but also geopolitical influence.

This is no different in the European Union, where 18 of the 27 countries are part of the Belt and Road Initiative. This is not just the EU, but the wider region. In 2012, the 16+1 grouping was created, bringing together 11 EU member states and 5 Western Balkan countries.[46] In this case, China has strengthened its regional presence in Greece. In 2008, during the great financial crisis, Greece and China signed a 35-year concession agreement for two container terminals in the port of Piraeus. China thus managed to penetrate not only Greece but also the European geopolitical structure with its influence.[47] Another example is Hungary, the country that receives the most investment from China within the V4 and is also the first EU country to join the initiative back in 2015.[48] In 2015, Hungary, Serbia and China signed an agreement on joint investment in the form of the construction of a 3.8 billion euro railway link between Budapest and Belgrade. A significant part of this investment will go back to China, as Chinese companies have been hired to build it.[49] The main aspect of the construction, however, is to strengthen its influence in Central Europe, at a time when it is Hungary that is losing EU funding as a result of allegations of the law violations. According to the Centre for Foreign Relations, the influx of the investments in question has an impact on EU unity and also on the transatlantic partnership. For example, Hungary, Austria and Greece have prevented a ban on 5G technology from Chinese company Huawei, Greece vetoed condemnation of a Chinese human rights abuses and Serbia, an EU candidate country, is supporting projects that violate EU environmental regulations.[50]

2 Chinese investments in Germany

China is not only focusing its interest on the countries of Central Europe and the Western Balkans, but also on powers such as Germany. Germany has become a key destination for Chinese FDI in recent years. These are mainly in the automotive sector, engineering, information and communication technologies and renewable energy. Germany is interesting recipient country for China as it offers a good business environment, industrial experience and also a central location in the European Union.[51] It is not only investment behaviour stemming from the motivations of Chinese entrepreneurs. The Chinese Government's Go Global programme encourages investment in countries from which they can obtain advanced technology or know-how. Between 2011 and 2020, China acquired majority ownership in 243 German companies, taking full ownership of 173 of them. There was a turning point in 2016, when China invested more in Germany than Germany invested in China. After 2018, however, there was a decline in Chinese investment in Germany, caused by increasing regulations from Germany and the EU, which we will discuss later. Another decline occurred during the COVID-19 pandemic, which marked a global economic decline. Chinese firms took a cautious

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approach to investment in the first half of 2020. However, this did not change the perception of Germany as one of the main investment locations in the EU.[52]

The influx of Chinese investment into Germany has provoked a range of reactions, from welcoming foreign capital to concerns about the country's growing vulnerability. While Chinese investment has had undoubtedly a positive effect on Germany's economic growth and job creation, on the other hand, there have been increasing calls for the government to tighten controls on Chinese investment and to adopt regulations to protect critical industries and infrastructure.[53] Unlike China, neither Germany nor the European Union at the time had a plan to effectively regulate Chinese investment, which could harm the competitiveness of European companies in the long term.[54]

Proof that Germany and the EU recognise China's geopolitical interests and their impact on the security of the European Union and Germany are the successive legislative changes and regulations that Germany has adopted, including the German-Chinese strategy adopted last July. In 2017, an amendment to the Foreign Trade and Payments Act was passed, which allowed state control over German companies, especially in critical sectors, already at lower financial values. This amendment was seen as a response to growing concerns about acquisitions of German firms by Chinese companies. In 2019 came an important change protecting not only Germany, but also for the entire EU. The European Union adopted a screening regulation that set frameworks for screening foreign investment into the EU. Germany agreed with the regulation and adopted further protection for critical industries as well as sensitive information. In 2020, it adopted another amendment to the internal laws, which again lowered the financial value at which foreign investment screening can be carried out in the sectors of national security. Another regulation was adopted in 2021 and, in addition to updating the screening mechanisms, it also brought a mechanism to scrutinize foreign investments in German critical sectors. Germany also adopted a strategy on China in 2023, emphasizing the need to balance economic cooperation with the protection of national security. It stresses diversification of trade relations to reduce dependence on China, especially in critical and high-tech sectors. In addition, the strategy advocates a unified EU approach towards China, strengthening cooperation within the EU and promoting human rights. This marks a strategic shift that aims to mitigate risks while maintaining engagement with China.[55]

These legislative changes, by the EU but especially by Germany, demonstrate a change in the perception of China and the need to adjust relations so that it does not pose a geopolitical threat to Germany and the EU. It is thus clear that despite China's efforts to build a narrative of purely economic cooperation, the EU's response is also built on a recognition of China's broader geopolitical and power objectives. The decline in Chinese investment in Germany demonstrates that Chinese entrepreneurs are responding to market regulations and a change in strategy towards European countries can be anticipated.

3 Public opinion and Chinese investments

The public opinion of German citizens towards China can now be called negative. According to surveys conducted between 2020 and 2022, up to 60% of Germans are willing to accept higher product prices in order to reduce Germany's dependence on China, and 48% of respondents prioritise respect for human rights over economic benefits in this context.[56]

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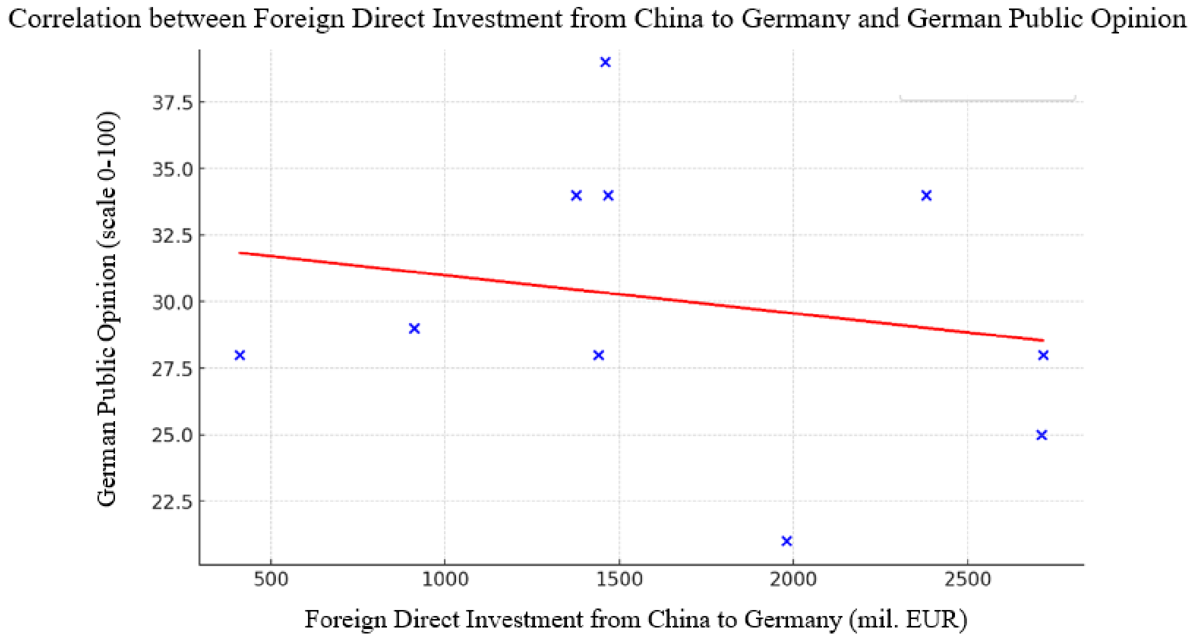
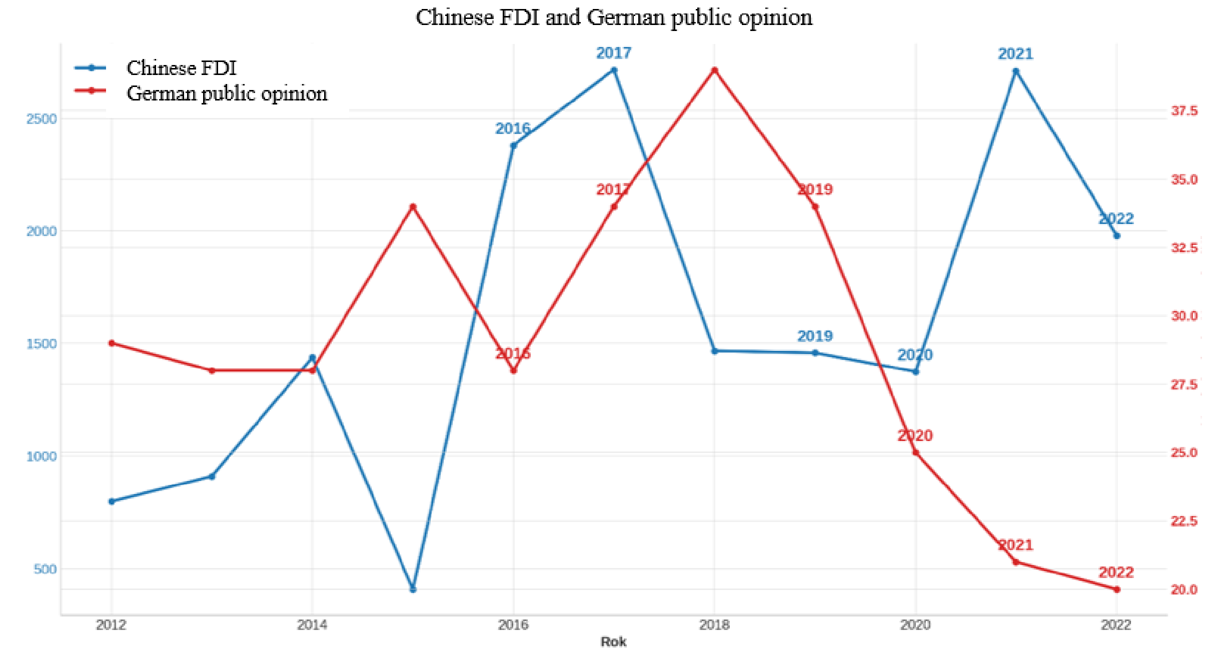
[56] DEUTSCHE GESELLSCHAFT FÜR AUSWÄRTIGE POLITIK (DGAP). (2021): Skeptical and Concerned - How Germans View China.

While the survey suggests reasons for negative feelings towards China, such as concerns about cybersecurity or lack of respect for human rights, the survey does not define the impact of investment and the adoption of legislation to regulate investment on the public opinion of Germans.



Source: STATISTA (2024): European views of China between February and May 2023, by country.

To answer the above question, a correlation analysis was performed to show the relationship between foreign direct investment (FDI) from China into Germany and the public opinion of Germany. Based on the results of the analysis, it can be concluded that the correlation between FDI and German public opinion is moderately positive but not significant. The Pearson correlation coefficient is approximately 0.469, indicating that when FDI from China to Germany increases, the public opinion of Germany tends to improve. It can be observed in the graph that some years, such as 2016 and 2017, Germany had high FDI inflows from China, while Germany's public opinion remained at a similar level to other years with lower investment. This could suggest that there are other factors that influence Germany's public opinion. Also, in 2019, when FDI from China fell compared to previous years, Germany's public opinion reached its highest point on record. The low correlation shows that German public opinion is not dependent on the amount of FDI from China, but its attitude towards China is influenced by other factors. One of them may be the adoption of new legislation.



Source: STATISTA (2024): Foreign direct investment (FDI) from China.

The chart above shows two main trends: the FDI from China to Germany and the positive public opinion of Germans towards China. The FDI curve is shown in blue and the public opinion curve in red. The highlighted points from years ago mark the time when the regulation of Chinese investment into Germany was tightened. As can be seen in the graph, 2016 marked a turning point in Chinese investment in Germany and its impact on German public opinion. As can be seen in the chart and as mentioned above, China invested more in Germany in 2016 than in the last 5 years combined. This has also had an impact on public opinion, as while foreign investment has been rising, Germans' public opinion of China has fallen. It was also in 2016 that the issue of Chinese investment became more prominent.[57] However, public opinion rebounded and grew along with FDI in 2017, when the first regulation of FDI from China was also adopted. 2018 can be described as a watershed year. It was a year when Chinese FDI dropped sharply, probably also on the back of the 2017 regulation, but public opinion still remained high. However, from 2019 onwards, i.e. after further regulation, we can observe a gradual decline in Chinese investment as well as in German public opinion. The latter has continuously declined and reached its historical lows despite the fact that Chinese FDI rose again in 2020. From this we can conclude that the continuous adoption of new German and European legislation and the public debate on Chinese investment has had more impact on German public opinion than the amount of FDI.

This trend continues in 2023, when up to 83% of Germans do not consider China a trustworthy partner. As recently as 2022, Germans in the survey gave a reason that supports the argument made in the analyses in this article: respondents think Germany should not be economically dependent on non-democratic countries.[58]

Conclusion

China's economic reforms initiated under Deng Xiaoping, started the crucial transition towards a mixed economy that blends market-driven mechanisms with state control over critical sectors. This economic pivot facilitated China's integration into the global market, notably marked by its accession to the World Trade Organization (WTO) and subsequent increased

[57] POLITICO (2016): Germany's Chinese investment problem.
[58] WESCHLER, S. (2021): German Public Opinion in the China Policy Debate. The Diplomat.

emphasis on outbound investment to secure technological assets, innovation capabilities, and integration into global value chains. This outstanding development was not restrained by the Chinese territorial borders. The narrative around the BRI oscillates between its portrayal as a mechanism for fostering economic collaboration and also as something, which we call "debt-trap diplomacy," aiming to secure strategic assets and geopolitical leverage, albeit with mixed evidence regarding its effectiveness and sustainability.

This paper narrows its focus to China's investment in Germany, illustrating how China's economic ambitions intersect with geopolitical strategies. Germany, in particular, emerges as a important point for Chinese FDI. The German case exemplifies the dual nature of Chinese investment: on one hand, stimulating economic growth and technological advancement of a recipient. On the other, raising concerns about national security, technological sovereignty, and the need for tighter regulatory frameworks to safeguard critical industries.

The analysis of public opinion in Germany towards China reveals a complex relationship influenced by economic interactions, regulatory measures, and broader geopolitical dynamics. As we proved in the correlation analysis, there is unsignificant correlation between Chinese FDI and positive public sentiment in Germany. Thus we can declare the attitude of Germans towards China is not dependent on the volume of Chinese investment activities in the country. However, we argue that legislative actions on China's investments stimulate the public discussion and have an impact on German public opinion.

In conclusion, we examined the multifaceted nature of China's global economic strategies, embodying a blend of economic aspirations and geopolitical ambitions. While China seeks to bolster its economic growth and international stature through initiatives like the BRI and strategic investments in countries like Germany, these efforts are met with cautious engagement and regulatory scrutiny, reflecting the complex interplay between economic interdependence and sovereign security concerns. The evolving narrative around Chinese investment abroad underscores the necessity for balanced economic cooperation, vigilance against potential geopolitical ramifications, and a collective regulatory approach to ensure mutual benefits and the safeguarding of national and regional interests.

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VOLATILITY IN THE US RENEWABLE STOCK DURING 2004-2022[1]

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Abstract: In this article, we investigated the effect of attention on the volatility of stock prices on a sample of time series of selected stock prices of daily data over a period of eighteen years between 2004 - 2022. Although volatility is usually modeled only by statistical variables without economic interpretation, such as its previous values, scientific studies indicate that the use of investor attention in these models is both statistically and economically significant. In this paper, we modeled the relationships between volatility and investor attention on the previous day, augmented with six attention indices constructed from Google site search data. As control variables, we used variables of the volume of traded shares and the value of the VIX index from the previous day. The results of the work focus on the influence of attention indices. For reasons of robustness, we estimated the effect of attention in three types of models. The VAR model finds statistically significant coefficients for attention more often, but the impact of attention on renewables has a negative effect and moderates volatility.
Keywords: finance, realized volatility, volatility models, forecasting, attention
JEL: E42, E50

Introduction

Stock market modelling is fundamental for comprehending the intricacies of financial markets and making well-informed investment decisions. While traditional models like the Efficient Market Hypothesis (EMH) and the Capital Asset Pricing Model (CAPM) have long been used to understand long-term trends and returns based on rationality and efficient markets assumptions, recent research has shed light on the significant role of investor attention in stock market dynamics.

Investor attention, which refers to the focus and awareness directed by market participants towards specific stocks, sectors, or market events, has been increasingly recognized as a crucial factor influencing stock market behaviour. Unlike traditional models that focus solely on fundamental factors, attention-based models propose that stock prices and returns are influenced not only by fundamental factors but also by fluctuations in investor attention.

To capture the dynamics of attention and its relationship with stock market variables, various models have been developed, including sentiment analysis, natural language processing, and machine learning techniques. These models aim to extract and analyse information from large-scale data sources, including social media platforms like Twitter and online communities such as Wallstreetbets on Reddit. Social media platforms offer investors a unique avenue to access real-time information, sentiment analysis, and discussions about specific stocks and market trends. However, investors must exercise caution while analysing information from social media, as it can also be prone to manipulation and pump-and-dump schemes.

In addition to information gathering and sentiment analysis, social media platforms provide investors with a platform to share their own trading experiences and strategies. Stock

[1] This paper is an output of the science project VEGA 1/0639/24 Financial innovations, digitalization and financial literacy as accelerators of economic recovery in a competitive environment with economic imbalances.

chats and forums foster a collaborative environment where investors can exchange ideas and insights, thereby refining their trading strategies.

As stock prices become increasingly driven by non-economic factors such as sentiment and attention, researchers and practitioners are prompted to seek new approaches to modelling stock returns and volatility. This paper aims to explore the impact of attention on stock market volatility by proposing new models that incorporate attention as a factor and testing their predictive power.

By recognizing new investor behaviours and incorporating them into stock market models, we can better understand the dynamics of stock market volatility and make more accurate predictions about future market movements. This research contributes to the ongoing evolution of stock market modelling and provides insights into the factors driving stock market behaviour in the digital age.

1 Literature review

Individuals have a limited amount of attention that they can devote to investing. Attention can affect the trading behavior of investors in two distinct ways. On one hand, directing too little attention to important information can result in a delayed reaction to important information. On the other hand, devoting too much attention to (perhaps stale or irrelevant) information can lead to an overreaction.

Recent research provides some support for the notion that distracted investors miss important information. Hirshleifer, Lim, and Teoh find that the market reaction to an earnings surprise is smaller and post-earnings announcement drift is greater for firms that announce earnings on days that many other firms announce earnings; they argue that this is because more firms are competing for investors' attention.[2] Similarly, Dellavigna and Pollet document the market reaction to Friday earnings announcements is muted and the drift is greater; they argue investors are distracted on Fridays and are unable to fully process Friday announcements.[3] However, Hirshleifer et al. are unable to link post-earnings announcement drift to the trades of individual investors in the LDB dataset, who tend to be net buyers subsequent to both positive and negative extreme earnings surprises.[4] Barber and Odean argue that attention greatly influences individual investor purchase decisions. Investors face a huge search problem when choosing stocks to buy.[5] Rather than searching systematically, many investors may consider only stocks that first catch their attention (e.g. stocks that are in the news, or stocks with large price moves). This will lead individual investors to buy attention-grabbing stocks heavily. Since most individual investors own only a small number of stocks and only sell stocks that they own, selling poses less of a search problem and is less sensitive to attention effects. Using abnormal trading volume, the previous day's return, and news coverage as proxies for attention, Barber and Odean find that individual investors in the LDB and FSB datasets execute proportionately more buy orders for more attention-grabbing stocks.

Examining transaction records for 6,459,723 accounts trading on the Shanghai Stock Exchange, Seasholes and Wu document positive buy-sell imbalances for individual investors when stocks hit upper price limits.[6] They argue that hitting an upper price limit is an attention-grabbing event and find that imbalances are most positive when few other stocks hit upper price

[2] HIRSHLEIFER, D. – LIM, S. S. – TEOH, S. H. (2009): Driven to Distraction: Extraneous Events and Underreaction to Earnings News.

[3] DELLAVIGNA, S. – POLLET, J. M. (2009): Investor inattention and Friday earnings announcements, pp. 709-749.

[4] HIRSHLEIFER, D. A. et al. (2008): Do individual investors cause post-earnings announcement drift? Direct evidence from personal trades, pp. 1521-1550.

[5] BARBER, B. M. – ODEAN, T. (2008): All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors, pp. 785-818.

[6] SEASHOLES, M. S. – WU, G. (2007): Predictable behavior, profits, and attention, pp. 590-610.

limits on the same day. Even investors who have never previously owned a stock are more likely to buy when stocks hit these limits. Seasholes and Wu also find that other (rational) investors systematically profit at the expense of the attention driven individual investors.

Engelberg and Parsons find that individual investors are more likely to trade an S&P 500 index stock subsequent to an earnings announcement if that announcement was covered in the investor's local newspaper. Both buying and selling increase, though buying somewhat more than selling.[7] Engelberg, Sasseville, and Williams look at overnight market reaction to buy and sell recommendations on the television show Mad Money.[8] They find that the market reaction is greater following recommendations made when viewership—based on Nielson ratings—is higher. Furthermore, consistent with Barber and Odean's hypothesis that attention matters more for buying than selling, they find that: "While first-time buy recommendations have a large overnight return of 2.4%, first-time sell recommendations have overnight returns that are smaller in magnitude (−0.29%)."

Da, Engelberg, and Gao use Google search frequency as a measure of investor attention to analyse whether investor attention can cause price pressure effects as described in Barber and Odean. Using data from 2004 to 2008, they document that increases in search frequency predict higher returns in the ensuing two weeks and an eventual reversal within the year.[9]

Investor attention is a scarce resource. Prior studies document the importance of investor recognition and attention for asset pricing (see Arbel and Strebel, Merton) and for trading (see Barber & Odean).[10,11,12] However, most of the attention-related studies use indirect and low-frequency (daily, weekly, monthly) proxies for investor attention. Da, Engelberg, and Gao and Joseph, Wintoki, & Zhang, introduce intensity of Google searches as an innovative and direct measure of aggregate retail investor attention.[13,14] Conventionally, retail investors are assumed to be uninformed providers of liquidity while institutional investors are informed demanders of liquidity. However, since Google searches serve an information purpose, do retail investors become informed and start demanding liquidity after "googling" the company? Alternately, Google searchers may believe that they have become informed but instead provide liquidity for the truly informed traders. In other words, retail investors may become noise traders.

Retail investors use investment forums of social media or the Google search engine as a publicly available source of information about capital markets because they have limited sources and access to professional databases like Bloomberg or Thomson Reuters. This idea is presented in papers of Da et al. Vlastakis and Markellos and Ding and Hou who employ the Google queries in their analysis.[15,16,17]

Information demand is also presented in Sprenger et al., who proposes the investment forums of Twitter as an alternative information source for retail investors. Investment forums on social media connect retail investors with a discussion about the securities, market and their

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[7] ENGELBERG, J. E. – PARSONS, C. A. (2011): The causal impact of media in financial markets, pp. 67-97.
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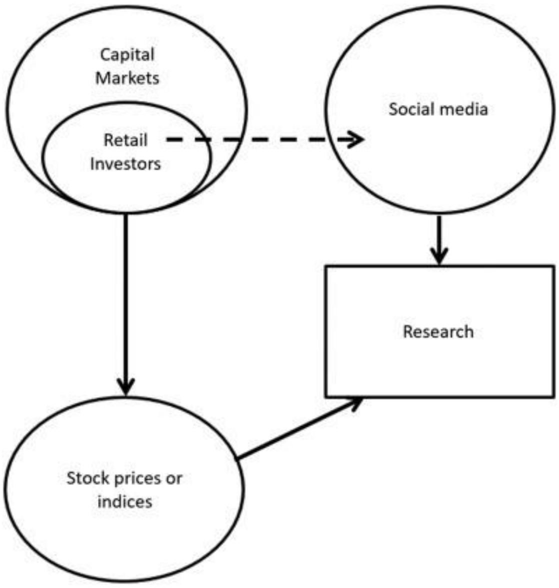
fundamentals. The rationale of information demand is presented in figure 1, which shows a simple transmission mechanism.[18]

Figure 1: Transmission mechanism—information demand



Source: Sprenger, T. O. et al.: Tweets and trades: The information content of stock microblogs. European Financial Management 20.5 (2014): 926-957

The transmission mechanism begins with capital markets and retail investors are a part of it. Retail investors, due to limited resources, use social media investment forums or the Google search engine as the main information source. However, we can assume only a partial reflection of information demand in social media data because social media are not the only source of information for retail investors. This is indicated in Fig. 1 by the dashed arrow from retail investors to social media. Furthermore, capital market aggregate activity, which also includes trading of retail investors "defines" the value of stock prices or stock indices. This is shown by the solid arrow. Subsequently, research in this area employs the data from capital markets and social media to better understand the behaviour of retail investors for stock price/market formation and its volatility. Important parts of the transmission mechanism are in circles. "Research" is in the rectangle, to distinguish it from the main parts of the transmission mechanism.

2 Methodology

In this model we extend VAR model with two sets of attention variables. The first measure is a direct measure of investor attention and is based on Google search query volume. The second measure of attention is daily trading volume for a given stock. Trading volume is more indirect proxy for measuring investor attention and complements Google search. As we describe in length, both these measures are established factors that capture attention, with volume being one of the oldest ways to approximate attention in financial modelling.

We estimate the dynamics between realised volatility, search queries, and trading volume, by estimating an extended vector auto regressive model. Let $\boldsymbol{x_t}$ be a vector of volatilities at time t. $\boldsymbol{c}$ is a vector of constants, $\boldsymbol{\varepsilon_t}$is a vctor of independent white noise variations. The lag-length is determined using the Schwarz Bayesian information criterion. In the model 1 of our analysis, investigates the dynamics between realised volatility and search

[18] SPRENGER, T. O. et al. (2014): Tweets and trades: The information content of stock microblogs, pp. 926-957.

queries, i.e $\boldsymbol{x_t} = (\log RV_t \, Log \, SQ_t)'$. The extended model 2 is a joint model of realised volatility, search queries and trading volume such that model includes a range of additional attention explanatory variables.

$$\boldsymbol{x_t} = \boldsymbol{c} + \sum_{j=1}^{a} \boldsymbol{\beta_j} \boldsymbol{x_{t-j}} + \boldsymbol{\varepsilon_t} \tag{1}$$

$$\begin{pmatrix} log & \begin{matrix} RV_t \; VIX_t^2 \; lnGenI_t \; lnEmoI_t \; lnBioI_t \\ lnWinI_t \; lnSolI_t \; lnStoI_t \end{matrix} & logVol_t \end{pmatrix}' = \boldsymbol{c} + \sum_{j=1}^{a} \boldsymbol{\beta_j} \begin{pmatrix} log & \begin{matrix} RV_{t-1} \; VIX_{t-1}^2 \; lnGenI_{t-1} \; lnEmoI_{t-1} \; lnBioI_{t-1} \\ lnWinI_{t-1} \; lnSolI_{t-1} \; lnStoI_{t-1} \end{matrix} & logVol_{t-1} \end{pmatrix}'_{\boldsymbol{j}} + \boldsymbol{\varepsilon_t} \tag{2}$$

3 Results

Our use of VAR model examines the relationship between investors' attention as measured by Google trends indices and trading volume. Our analysis starts with a bare-bones VAR model that only includes one explanatory variable – a lag of daily stock variance measured as a composite of three range-based variance estimators. The dependent variable is the stock variance at time t (not lagged). The extended VAR model is built upon the base VAR with extra covariates for attention and the Chicago Board Options Exchange's CBOE Volatility Index (Vix). Attention measures include a list of variables that capture individual industry attention across different parts of the renewable energy space, and a stock specific attention measure that focuses on investors' attention rather than the broader renewable energy. In addition to the attention measure using Google search data, we include a volume-based measure that proxies attention indirectly. Lastly, we expand our volatility model with a market-based volatility index – Vix. This is a popular index based on the prices of stock options in the broader stock market and is generally believed to be a good predictor of future volatility, as was demonstrated in the empirical research reviewed in this thesis. In our model, we find significant estimates of the autoregressive parameters for the realised volatility in each of the 20 companies' stocks evaluated. Search queries show significant autoregressive terms for the first lag as well. This is shown in Table 1 rows 2 to 6.

Although not reported here, there is a high contemporaneous correlation between volatility and searches indicating that searches immediately react to a volatility shock on the same day. The focus of our interest is how past search activity influences present volatility. We find that search queries enter the RV-equation significantly at lag 1 while higher order lags were generally found to be less significant for past realised volatility, volume, and Vix and not significant for the attention indices. Looking at the regressions where volatility is a dependent variable, we see that past volatility is the biggest and most significant determinant of future volatility. Similarly, Vix, as a market measure of stock market risk, is also significant across all 20 stocks. This is expected so far. Focusing on the coefficients of attention, volume has been found to be significant at 15 out of 20 stocks, supporting the earlier evidence in academic literature. Next, Google search-based measures of attention show a more mixed picture. First, attention based on stock related news and stock price, measured by GT_stock_index shows a positive effect on next day's volatility with 7 out of 20 stocks being statistically significant, pointing to investors' searching for stock news and prices prior to placing trades for the stock they follow. The rationale of this relationship is explained in detail in this thesis. Second, renewable attention specific indices show more nuanced relationship. The overall impact of these indices is negative, which means that higher attention to renewable energy is associated with lower volatility on the next day. Solar Index is significant 7/20 times. All with a negative coefficient sign. Wind index is significant 12/20 times but with some coefficients being positive and some negative, potentially contributing to higher volatility to wind stocks and lower volatility to other renewable companies due to limited attention bias. Bio index is significant 10/20 times with positive impact on volatility. EMO index is significant 9/20 times with mixed impact on volatility. Gen Index is significant only 8/20 times with positive impact on volatility.

The causality between attention and volatility seems to be running both ways. This indicates that past searches provide significant information about future volatility and volatility also impacts search queries by alerting investors to the field of renewable energy. We reject the null hypothesis of no influence of past log search queries on current log (realised) volatility on all conventional significance levels. These results support the noise trader model of excess volatility.[19] After an initial shock in volatility, search intensity rises, which in turn is followed by heightened levels of volatility.

[19] DE LONG, J. B. et al. (1990): Noise trader risk in financial markets, pp. 703-738.

Table 1: Vector Auto Regressive Model Estimates

Panel B: Coefficients (y = Vol)	WOLF	OLED	TSLA	THRM	PWR	WWD	AEIS	ACA	ESE	ITRI
Vol_l	0.323***	0.324***	0.392***	0.325***	0.339***	0.238***	0.266***	0.277***	0.291***	0.302***
GT_stock_index_l	0.034**	0.021	0.081***	0.011	0.058***	0.066***	0.013	-0.007	0.022	-0.004
SolarIndex_l	0.013	-0.245***	-0.160	-0.27***	-0.060	-0.039	-0.201**	-0.102	-0.246***	0.109
WindIndex_l	-0.111*	0.218***	0.078	0.531***	0.3***	0.212***	0.207***	0.5***	0.256***	0.008
BioIndex_l	0.301***	-0.087	-0.022	0.257***	0.355***	0.271***	0.237***	-0.136	0.306***	0.312***
EMOIndex_l	0.063	0.001	-0.072	-0.204***	-0.153***	-0.245***	-0.126**	-0.312*	-0.086*	-0.057
GenIndex_l	0.094	0.37***	0.319**	0.038	-0.129	-0.013	0.203**	0.030	0.023	-0.143
VIX_l	0.886***	0.676***	0.753***	0.909***	1.002***	1.324***	0.892***	1.012***	0.974***	1.017***
Volume_l	0.333	1.863***	1.44***	0.803***	-0.112	0.214	1.25***	2.414***	0.591**	0.485*
Panel B: Coefficients (y = Vol)	**MYRG**	**ENPH**	**SEDG**	**RUN**	**FSLR**	**REGI**	**SPWR**	**ED**	**ALB**	**LTHM**
Vol_l	0.286***	0.382***	0.343***	0.333***	0.447***	0.682***	0.422***	0.39***	0.305***	0.292***
GT_stock_index_l	0.005	-0.105**	-0.016	0.052	0.078***	0.014	0.059***	0.010	0.006	0.016
SolarIndex_l	0.052	-0.152	0.089	0.272*	-0.245***	-0.104	-0.074	0.126*	0.207***	0.044
WindIndex_l	0.099	0.084	-0.332**	-0.214*	-0.021	-0.180	-0.157**	-0.246***	-0.234***	-0.072
BioIndex_l	0.013	-0.091	0.173	0.009	0.126*	0.010	0.237***	0.238***	0.264***	0.014
EMOIndex_l	0.037	0.087	-0.277***	-0.078	-0.021	-0.071	0.216***	0.053	0.149***	-0.157
GenIndex_l	0.112	0.631***	0.524***	0.251	0.451***	0.336**	0.241***	-0.028	-0.046	0.293
VIX_l	0.821***	0.507***	0.71***	0.87***	0.554***	0.337***	0.67***	0.849***	1.224***	0.753***
Volume_l	0.93***	1.426***	2.227***	1.269**	1.03***	1.462***	0.175	-0.120	-1.015***	2.88***

Notes: The 10%, 5% and 1% significant coefficients are denoted as *, **, and *** respectively

Conclusion

Stock market modeling is crucial for understanding financial markets and making informed investment decisions. Traditional models like the Efficient Market Hypothesis and the Capital Asset Pricing Model focus on rationality and efficient markets, but recent research highlights the importance of investor attention in stock market dynamics. New models using sentiment analysis, natural language processing, and machine learning analyze large-scale data from sources like social media, offering real-time insights but requiring caution due to potential manipulation. The results of our study support the findings of existing published research. We found that strength and significance of attention coefficients changes across the three models, but generally suggest that volume and attention to stock prices leads to volatility increases. However, attention to industry topics related to the sector of our stocks is often only weakly related to next day's volatility and is often associated with volatility decreases. We postulate that such a negative effect is caused by investors making more consensus driven and data-based investments that marginally decrease volatility when their attention is focused on industry fundamentals rather than stock prices. Further research in this field should focus on testing the role of attention using more relevant datasets to cover wider range of attention indicators such as activity on social media platforms for example YouTube or TickTock.

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IMPACT OF FOREIGN OWNERSHIP ON BANKRUPTCY PREDICTION IN THE SLOVAK BUSINESS ENVIRONMENT[1]

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Abstract: This study focuses the impact of foreign ownership on bankruptcy prediction in the Slovak business environment using logistic regression analysis. We utilized data from the Finstat premium database, comprising 168,252 companies from 2013 to 2018. Enterprises with foreign ownership have a slightly significant increase in the probability of failure, which is different from previous literature findings and does not support our hypothesis because foreign ownership influences bankruptcy risk in the Slovak business environment. The findings offer important information for individuals involved in companies decision-making, lending institutions, and government officials who are working towards improving the financial security of businesses in Slovakia.
Keywords: bankruptcy prediction, logistic regression, foreign ownership
JEL: G33

Introduction

Corporate bankruptcy models assume a crucial role in the realm of finance, particularly in the context of risk management. They provide valuable insights into the resilience and financial well-being of corporations. In the presence of diverse challenges arising from both internal and external domains throughout their operations, the most accurate assessment of the financial scenario can assist shareholders, debt-holders, and interested parties in their investment determinations and mitigate potential financial hazards.

Bankruptcy is a legal process that occurs when a corporation is unable to meet its financial obligations. Such a scenario commonly entails significant consequences for the organization and its surroundings. It typically results in financial setbacks, workforce reductions, and economic instability. Consequently, the development of models to forecast adverse financial conditions has become a crucial area of investigation and analysis for financial institutions, regulators, and investors.

Bankruptcy prediction models employ statistical approaches and machine learning techniques to analyse the effects of ratio financial metrics on other quantitative or qualitative metrics of a companies' effectiveness. Through the examination of a diverse set of financial data derived from income statements, balance sheets, or financial markets, these models endeavour to detect signs that may point towards potential financial fragility.

The globalisation of markets has resulted in an increasing prevalence of foreign-owned enterprises in many nations. This paper delves into the influence of foreign ownership on the probability of insolvency within the Slovakian business environment. Through the application of logistic regression analysis, our objective is to ascertain whether foreign-owned enterprises demonstrate distinct insolvency hazards in comparison to domestically held companies. Through the examination of an extensive dataset of Slovakian enterprises, this study furnishes valuable perspectives on the role of foreign ownership in economic

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stability, adding to the broader dialogue on global commerce and financial robustness. The main goal of this research is to test the hypothesis: There is no significant difference in the likelihood of bankruptcy between foreign-owned and domestically owned businesses in Slovakia.

1 Literature review

Factors influencing the probability of failure of a corporation are intricate and can be categorized into various groups. In both developed and emerging economies, a multitude of factors have been extensively examined regarding their capacity to forecast business failure in academic research carried out to date. The existing literature on corporate failure offers numerous investigations into potential risk factors. Typically, this can be detected through alterations in financial metrics. Nevertheless, the effectiveness of a corporation is predominantly shaped not just by financial metrics. Ongoing academic research has predominantly concentrated on recognizing patterns that involve both financial and non-financial factors serving as indicators of a corporation's vulnerability to default. Based on an evaluation of existing literature, we have categorized these influences into two classifications, financial and non-financial determinants. Keasey and Watson (1987) produced one of the initial investigations involving non-financial factors in prediction models for failure in small and medium-sized enterprises.[2] Several subsequent scholarly investigations centred on this domain have validated that non-financial influences characteristic of society significantly contribute to enhancing the overall predictive capacity.

Several studies primarily point to different conditions within the sectoral structure of enterprises. Dimitras et al. (1996) highlighted that investigations aimed at forecasting companies default categorize enterprises based on sector, and most research primarily concentrate on manufacturing enterprises, a fusion of manufacturing and retail enterprises, or enterprises from diverse industrial domains.[3] Studies conducted by Chava and Jarrow (2004) have proven that sector classifications have a notable impact on forecasting the likelihood of default by affecting both the constant and the slope of the coefficients encompassed in the examination of their model.[4]

Smith and Alvarez (2021) demonstrated that, across various sectors, the building domain displayed the highest collapse percentage despite ranking third in terms of the quantity of enterprises scrutinized. Additionally, the writers emphasized that the four most densely populated regions — Madrid, Catalonia, Valencia and Andalusia — all documented a substantial number of unsuccessful businesses.[5] Vital financial performance metrics and the organization's sector in accordance with the standardized industry categorization were scrutinized by Lohmann and Möllenhoff (2023).[6] Furthermore, a study by Arora and Saurabha (2022) concentrated on financial metrics that can assess a company's financial challenges while evaluating an equally extensive sample of financially sound and financially distressed enterprises and focusing on attributes of an identical sector and scale decile as organizations.[7]

Distinct sector attributes and other qualitative information such as the legal structure or management of the organization possess the capability to provide valuable perspectives

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[4] CHAVA, S. – JARROW, A. (2004): Bankruptcy Prediction with Industry Effects, pp. 537-569.

[5] SMITH, M. – ALVAREZ, F. (2022): Predicting Firm-Level Bankruptcy in the Spanish Economy Using Extreme Gradient Boosting, pp 263-295.

[6] LOHMANN, C. – MÖLLENHOFF, S. (2023): Dark premonitions: Pre-bankruptcy investor attention and behavior, pp 589-609.

[7] ARORA, P. – SAURABH, S. (2022): Predicting distress: a post Insolvency and Bankruptcy Code 2016 analysis, pp. 604-622.

and aid in decision-making procedures associated with the risk of company insolvency (Esteve-Pérez et al., 2010; Thornhill and Amit, 2003; Arnis, 2018).[8]

Numerous studies collectively emphasize the significance of the legal configuration of the selected organization for its operational efficiency, the risk profile, growth, and likelihood of collapse are substantial, as numerous investigations thus far underscore this aspect. Harhoff et al. (1998) demonstrated that limited liability enterprises had increased insolvency frequencies compared to total liability enterprises.[9] Similarly, Mata and Portugal (2002) highlighted the role of the legal framework in forecasting the risk of organizational collapse, noting a statistically significant difference in survival rates between limited liability companies and publicly traded enterprises.[10] Iwasaki and Kim (2020) exposed that closed corporations and limited liability entities displayed superior survival percentages in contrast to open corporations, partnerships, or cooperatives.[11] Fidrmuc and Hainz (2010) analysed the distinct motivations of stockholders and management within various legal frameworks regarding the willingness to accept risk and the probability of insolvency.[12]

In spite of the fact that the impact of a company's maturity on the likelihood of its default is recorded in the literature, this correlation is not entirely evident. As numerous investigations have indicated, the impact of a company's age on its likelihood of collapse is intricate and diverse. Thornhill and Amit (2003) and Kacer et al. (2019) propose that while older companies are distinguished by a diminished risk of default because of accumulated assets, experience, and earnings, their incapacity to adjust to advancing market requirements might increase their vulnerability.[13] Conversely, new enterprises frequently confront elevated risks of bankruptcy, mainly because of the high entry expenses that they initially succeed in covering from the initial funds and only experience financial difficulties after it is exceeded. Companies that effectively deal with these initial obstacles have a tendency to be more robust over time, resulting in reduced collapse percentages.

The impact of foreign ownership on bankruptcy prediction is a complex topic that has been investigated through various research perspectives, demonstrating that ownership structures, including foreign ownership, have a significant impact on the probability of bankruptcy and the effectiveness of bankruptcy prediction models. Studies have indicated that engaging in international activities, such as exporting, can decrease the likelihood of default for a company, implying that companies with international operations, potentially involving foreign ownership, may face a lower risk of bankruptcy.[14] Research has also revealed that enterprises focused on exports have lower rates of bankruptcy, underscoring how international market diversification can shield against financial difficulties.[15] Particularly

[8] ESTEVE-PÉREZ, S. – SANCHIS-LLOPIS, A. – SANCHIS-LLOPIS, J. (2010): A competing risks analysis of firms' exit., pp. 281-304; THORNHILL, S. – AMIT, R. (2003): Learning About Failure: Bankruptcy, Firm Age, and the Resource-Based View; ARNIS, N. (2018): Predicting Corporate Bankruptcy: A Cross-Sectoral Empirical Study - The Case of Greece.

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[10] MATA, J. – PORTUGAL, P. (2002): The survival of new domestic and foreign-owned firms, pp. 323-343.

[11] IWASAKI, I. – KIM, B. (2020): Legal forms, organizational architecture, and firm failure: a large survival analysis of Russian corporations, pp. 227-275.

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[14] LISBOA, I. – COSTA, M. (2021): International Effect on Family SME Financial Distress Prediction, pp. 175-192.

[15] ZVARIKOVA, K. – SPUCHLAKOVA, E. – SOPKOVA, G. (2017): International comparison of the relevant variables in the chosen bankruptcy models used in the risk management, pp. 145–157.

in emerging markets, ownership structures have been shown to be crucial in the precision of financial distress prediction models. The incorporation of ownership factors, like the presence of a family as the primary shareholder, has been proven to have a substantial impact on prediction results, suggesting that foreign ownership could similarly influence bankruptcy prediction models.[16] This is further complicated due to the observation that multinational corporations, which may include foreign-owned subsidiaries, often demonstrate different financial characteristics, such as reduced leverage, in comparison to local companies, introducing another layer of complexity to bankruptcy prediction in the context of foreign ownership. In conclusion, foreign ownership can indeed influence bankruptcy prediction, both directly by impacting a company's financial well-being and indirectly by shaping the variables and models utilized in predicting bankruptcy. The data indicates that foreign ownership may be linked to decreased bankruptcy risk, likely attributed to enhanced financial stability, broad market exposure, and efficient corporate governance mechanisms.[17]

2 Data and Methodology

For the analysis, we used data from the Finstat premium database of 168,252 companies operating in Slovakia between 2013 and 2018. The chosen time frame does not consider external factors such as the COVID-19 pandemic or Russia's invasion of Ukraine. The data sample includes joint stock companies and limited liability companies. We identified a total of 941 companies in the database that failed during the research period. Failed companies are characterized as those that are unable to meet their financial obligations. In addition to data from profit and loss statements and financial statements of companies, the database includes a number of other non-financial characteristics that have been identified as important determinants of corporate failure based on the reviewed literature.

Using binary variables, we have assigned the region in which companies operated which enabled a detailed analysis of regional economic differences. In addition to the regional classification, we expanded the analysis by sector classification, as each of the sectors represents a different aspect of the country's economy. We further separated the companies based on their legal form into two subgroups – into joint stock companies and limited liability companies. As part of the analysis, we created a binary variable from the available data that identified companies that had obligations to state institutions during the monitored period, i.e. debt to the health or social insurance company, tax arrears or other claims to the state. We supplemented the identification of payment unreliability with another binary variable, payment order. Previous research was also focused on understanding the life cycle of the organization and the potential correlation between the age of companies and the likelihood of financial difficulties; therefore we also identified the age of each company based on the year of its foundation. Furthermore, we classified companies based on size, according to the criteria established by the European Commission, which take into account the number of employees, turnover and total assets. For a thorough examination, we also included a binary variable that separated foreign ownership from domestic ownership and the total number of employees in each company among the differentiating factors. From the wide database of data, based on previous research and the literature review, we have identified 8 financial variables, which have been calculated from the database of data from profit and loss statements and financial statements of companies. Liquidity, asset turnover ratio, degree of self-financing, debt leverage, working capital and retained earnings-to-asset ratio, equity-to-liability ratio, and return on assets — have been extensively validated in the academic literature for their effectiveness

[16] JOUNGHYEON, K. (2020): Determinants of Corporate Bankruptcy: Evidence from Chaebol and Non-Chaebol Firms in Korea.
[17] GURUNLU, M. – GURSOY, G. (2010): The Influence of Foreign Ownership on Capital Structure of Non-Financial Firms: Evidence from Istanbul Stock Exchange, pp. 21-29.

in offering a comprehensive view of a company's financial health. The included ratio measures were winsorized to the 95th and 5th percentiles during data pre-processing to identify outliers. The selected data were divided into three subgroups, respectively, into training, validation, and test samples. The data in the training sample consists of the years 2013 to 2016, the validation sample covers the year 2017, and the testing data covers the entire year 2018. To guarantee that the performance of our model is not affected by the size of the independent variables, and we included standardization of the variables. To remove the imbalance between the number of failed and non-failed enterprises (168,252 enterprises and 941 failed), we used a data resampling technique (SMOTE) within the dataset used for training. This study used logistic regression to predict bankruptcy of the companies, employing Bayesian optimization to fine-tune the regularization strength parameter C. An initial exploration phase followed by iterations improved the model's accuracy, with optimal CC values identified for training. Predictions were evaluated using an ROC curve to determine the best threshold, and performance metrics like accuracy, sensitivity, and AUC were calculated. The confusion matrix and ROC curve illustrated the model's effectiveness in distinguishing between classes.

3 Results

The logistic regression model used in this research is formulated to determine the probability of insolvency by considering various explanatory factors. These factors include quantitative financial variables, debts owed to government entities, and qualitative variables such as organizational structure and sector categorization with emphasis on foreign ownership.

By combining elements from both categories of predictors, the logistic regression model is presented in the following way:

$$\log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots \beta_n X_n \qquad (1)$$

Where p represents the failure probability label, $\beta_0$is a constant, and $\beta_1$to β_n are the coefficients assigned to individual independent variables. Dependent variables X_1 to X_n include a range of binary indicators and continuous financial indicators.

Table 1: Results of Logistic Regression Model

Function	*Coefficient*	*Statistical Significance*
Constant	-1.741	***
Number of Employees	-0.315	***
Log of age	0.165	***
Liabilities to State	0.595	***
Payment Order	0.417	***
Quick Ratio	-0.287	***
Financial Accounts to Assets	-0.617	***
Degree of Self-financing	-1.043	***
Credit Load	0.144	***
Working Capital to Assets	0.445	***
Retained Earnings to Assets	0.217	***
Equity to Liabilities	0.055	***
Return on Assets	-0.352	***
Small	0.251	***
Medium	0.194	***
Joint Stock Company	0.170	***
Foreign Ownership	0.171	***
Agriculture Sector	0.097	***

Function	*Coefficient*	*Statistical Significance*
Manufacturing Sector	0.099	***
Construction Sector	0.124	***
Trade Sector	0.086	***
Transport Sector	-0.041	***
Accommodation Sector	-0.027	***
Real Estate Sector	0.018	***
Sector of Expert activities	-0.154	***
Administrative Sector	-0.048	***
Region Banska Bystrica	-0.030	***
Region Kosice	-0.118	***
Region Nitra	-0.252	***
Region Presov	-0.097	***
Region Trnava	-0.162	***
Region Trencin	-0.203	***
Region Zilina	-0.161	***

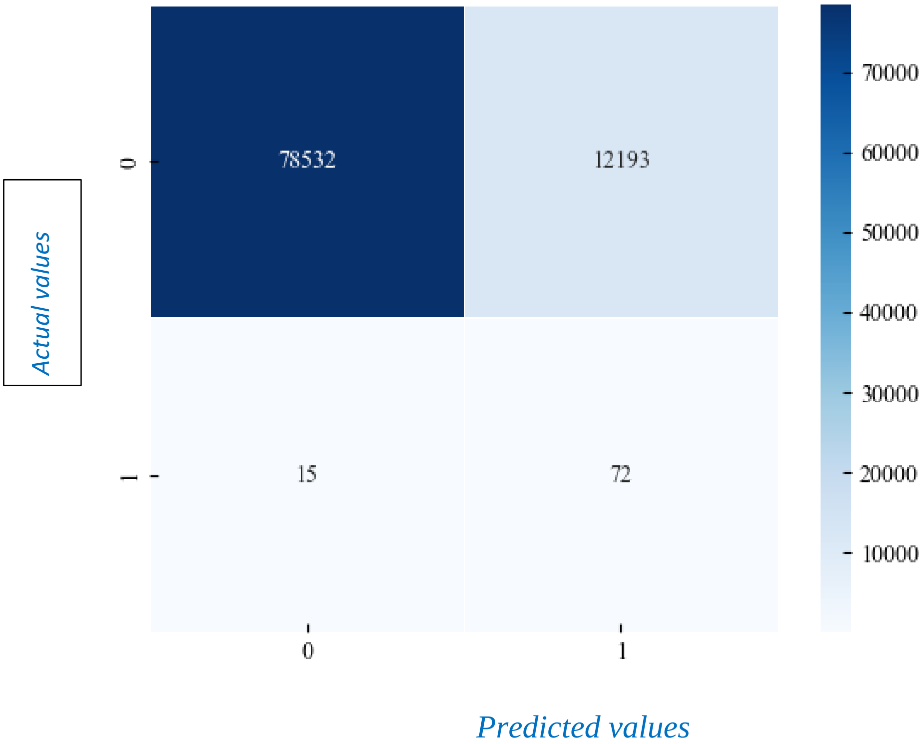
Note: *** indicates statistical significance ($p < 0.001$)

Source: Authors' own work based on data from FinStat Premium Database

The coefficient of 0.585 suggests that companies in debt to public institutions are notably more prone to default. Similarly, having a payment order against the company also increases the likelihood of default. The model results reveal that indicators like Working Capital to Assets and Retained Earnings to Assets, which were expected to have a negative association, actually have a positive impact on default. This implies that companies with higher working capital and retained earnings face an elevated risk. In comparison to micro enterprises, SMEs were identified as being more at risk according to the model results. Furthermore, foreign-owned enterprises and joint-stock companies have a slightly higher impact (0.17) on the probability of default. The debt load displays positive coefficients, indicating that companies with higher debt levels are at increased risk. Through a logarithmic age transformation, a slight positive correlation between age and failure was identified, suggesting potential risks for middle-aged companies compared to start-ups or well-established enterprises. The coefficient for quick liquidity indicates an inverse relationship, with higher liquidity significantly reducing the likelihood of default (-0.287). Comparing to the reference region of Bratislava, all other Slovak counties show a decrease in the probability of default, with Nitra being the least risky region. The impact of the number of employees suggests that companies with more employees are less likely to fail, a trend also observed for those with higher return on assets. The coefficients of financial assets to assets and the level of self-financing indicate that a sound financial structure lowers the risk of default. The variables analysing the sector's impact show minimal influence, with the construction sector posing the highest risk of failure and the professional activities sector the lowest.

The accuracy matrix displayed in figure 1 presents the outcomes derived from binary classification on a test dataset, utilizing a threshold determined by Youden statistics, which placed this threshold at 0.499.

Figure 1: Confusion matrix of Logistic regression



Source: Authors' own work based on data from FinStat Premium Database

In terms of performance, the model shows remarkable skill in identifying non-failed companies (high number of true negatives), strong model specificity. Despite the low number, 72 truly identified failures, we have to take into account the imbalance of our sample with this number of true positives, as the model remarkably identified up to 72 of the 87 failed companies in the test sample. The efficiency of the model drops significantly when looking at a relatively high number of false positives, potentially indicating reduced sensitivity. Complex accuracy can be better understood through the metrics used in failure prediction.

Table 2: Evaluating Logit Model Failure Prediction Using Metrics

Metric	*Value*
Accuracy	0,8656
Sensitivity	0,8276
AUC	0,9112

Source: Authors' own work based on data from FinStat Premium Database

Based on results from table 2, we can summarize that approximately 86.56% of the total predictions of the model are classified accurately. Although accuracy is the most commonly used metric, it tends to be misleading especially in cases with unbalanced data sets, where one class significantly dominates the other, which is also the case in our dataset. The sensitivity is remarkably high, at the level of 82.76%, which means that the model it can detect real failed companies well but with lower accuracy as it does so at the cost of many inaccurate predictions of false positive enterprises. The AUC score indicates a remarkable level of performance of the logistic regression model, highlighting the effectiveness of the model in distinguishing between two classes with a good degree of separability.

Conclusion

Our analysis included joint stock companies and limited liability companies, with a total of 941 companies identified as defaulted research period from 2013 until 2018. Based on the results of logistic regression, existing liabilities to state institutions and a recorded payment order contribute the most to increasing the probability of a company's failure, which is in line with previous findings.[18] According to the results of the logit model, companies with higher working capital and retained earnings face an increased risk of failure, which is largely inconsistent with previous research,[19] the same, although statistically insignificant, effect was noted by Káčer et al. (2019).[20] Small and medium-sized companies were identified as riskier than micro-enterprises based on the results of the logistic regression model, which is inconsistent with previous findings based on which the company's size reduced susceptibility to failure,[21] but consistent with a study that had the same methodology of dividing companies.[22] Companies with foreign ownership have a slightly significant increase in the probability of failure, which is different from an older Slovak analysis including data from 1997 to 2012.[23] This does not support our hypothesis because foreign ownership influences bankruptcy risk in the Slovak business environment. Based on the logistic regression results, a joint-stock company is a riskier legal form than a limited liability company, which is in line with expectations.[24] Enterprises with higher levels of debt are more prone to failure, which is in line with the expected assumption.[25] In contrast, higher liquidity, return on assets, degree of self-financing and a higher ratio of financial accounts to assets significantly reduce the susceptibility to failure.[26] Based on the logarithm of the company's age, the potential risks associated with middle-aged companies compared to start-ups or older, well-established businesses were highlighted.[27] In contrast to the reference regional category, the Bratislava region, the coefficients of all other Slovak regions point to a decrease in the probability of failure, while the Nitra region was identified as the least risky. From the effect of the number of employees, it can be deduced that companies with a larger workforce are less vulnerable. The coefficients of sector-oriented variables showed only a negligible effect, with the construction sector being

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the riskiest as in the study of Smith and Alvarez (2021),[28] and the professional activities sector the least.

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INTRA-REGIONAL TRADE IN AFRICA[1]

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Abstract: The aim of this paper is to identify the specifics of intra-regional trade, describe its specifics in Africa and outline the current state of intra-African trade at the time of initiation of the African Continental Free Trade Area (AfCFTA). We based our research on trade data, the Export Concentration Index and GDP p. c. to analyse the theoretical assumptions about intra-regional trade. We found a moderate negative correlation between the share of intra-African trade and export concentration, as the commodity structure of African countries´s exports still prevents further growth of intra-African trade and Africa still lags behind most world regions, despite the existence of several regional trade agreements.
Keywords: Africa, intra-regional trade, regional trade agreements
JEL: F15, F63

Introduction

International trade is regarded as an important stimulus to economic growth in developing countries, leading to the utilization of resources and expanding foreign exchange earnings. As Todaro and Smith[2] note, the impact on development is not straightforward and depends on the use and distribution of export earnings. When they cite the examples of countries successfully developing based mostly on international trade, however, none of the mentioned countries is in Africa. These countries are mostly from Asia, but Brazil is also mentioned.

In this paper, we focus on trade in countries of Africa and specifically on trade within Africa. The aim of this paper is to identify the specifics of intra-regional trade, describe its specific effects in Africa and outline the current state of intra-African trade at the time of initiation of an important agreement, The African Continental Free Trade Area (AfCFTA), that should encompass all eight existing regional trade agreements in Africa.

We base our research on scientific papers and international organizations' research papers both on intra-regional trade in general and intra-African trade specifically. Later, we analyse intra-African trade data using correlation analysis.

1 Intra-regional trade

Among the proponents of global free trade, there is a debate about whether regional trade agreements pose a threat to the global system, mostly based on WTO. In theory, regional agreements lead to trade creation (among members) and trade diversion (from non-members towards members).[3] Growing tendencies towards regionalization of trade were famously described as a *spaghetti bowl* by Baldwin,[4] who emphasizes the complicated nature of

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[1] This paper is part of the project I-24-106-00 *Changes in the positions of global actors in economic relations with Africa*.
[2] TODARO, M. P. – SMITH, S. C. (2020): Economic Development, pp. 615-645.
[3] RAY, D. (1998): Development Economics, pp. 725-746.
[4] BALDWIN, R. E. (2017): Multilateralising regionalism: spaghetti bowls as building blocs on the path to global free trade.

overlapping regional trade agreements (RTAs) but sees it as a potential building bloc in the process towards global free trade. Although the complicated system of overlapping RTAs creates a bureaucratic burden, the benefits of such cooperation push the countries involved towards further cooperation with a wider set of trade partners, thus fostering the creation of closer cooperation in the global trade system and further lowering trade barriers globally.

Pomfret[5] advocates regional trade agreements and argues that regional cooperation in the 2020s is no longer about promoting intra-regional trade behind barriers to external trade, but it creates a forum for the creation of common rules and norms that are not yet established on the WTO level and would be very unlikely to be accepted by all WTO members. These include rules on e-commerce, data transfer and protection, labour or environmental rights or foreign investment.

Freund[6] studied the potential negative effect of RTAs on non-member states based on three RTAs in America and three enlargements of the European Union. She concluded that there are no trade diversion effects and therefore that trade with non-member states was not negatively influenced by the creation of RTAs. In the case of Latin America, RTA creation has led to lower tariffs for third countries as well, supporting the claims that regional integration is not in opposition to global trade liberalization but rather a step in the direction towards global liberalization.

Similar positive overall effects of the proliferation of RTAs in East Asia were found by Park[7] and in ASEAN countries by Bun et al.[8] Park not only calculated the positive effects of East Asian RTAs on trade creation but also on overall output and welfare in member states. He also suggested possible positive effects of expanding cooperation of East Asian countries towards Hong Kong, Taiwan, Australia, New Zealand or India. The findings of Bun et al. are contrary to previous studies and show that intra-regional trade increased by 9% because of the creation of the ASEAN Free Trade Area. The difference in comparison to previous studies is explained by the inclusion of more factors influencing trade among countries.

There are however also studies showing trade creation among member states and trade diversion with non-member states. This was the result of a study by Moktan[9] on South Asian countries. The object of this study was the South Asian Association for Regional Cooperation (SAARC) with eight member states: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

Although the studies predominantly show the positive effects of RTAs on global trade volumes and the proliferation of global free trade, the effect of intra-regional trade on economic growth can be smaller compared to the effect of extra-regional trade. This is the conclusion of the paper by Wooster et al.[10] based on data from the European Union. The effect of extra-regional trade on output per capita was stronger than the effect of intra-regional trade by 30%. The authors explain their findings by several factors: greater competition from the global market fostering increased efficiency in production; larger economies of scale; and access to a wider range of skills and technologies.

Despite the positive effects of RTAs in macroeconomic terms, processes in the economies can be negatively influenced by redistribution of wealth and promoting further concentration of increased incomes in the hands of selected interest groups. Detailed analysis

[5] POMFRET, R. (2021): 'Regionalism' and the global trade system.
[6] FREUND, C. (2010): Third-country Effects of Regional Trade Agreements.
[7] PARK, I. (2006): East Asian Regional Trade Agreements: Do They Promote Global Free Trade?
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[9] MOKTAN, S. (2008): Evaluating the Intra–regional Exports and Trade Creation and Trade Diversion Effects of Trade Agreements in SAARC Countries.
[10] WOOSTER, R. B. et al. (2008): The Contribution of Intra-Regional and Extra-Regional Trade to Growth: Evidence from the European Union.

of these effects should be included in the evaluation of RTAs' effects. Rodrik[11] argues that trade effects should therefore be studied not only on a country level but should include considerations of the effects of trade on wealth and income equality and market participation.

2 Intra-African trade

Ray[12] states that RTAs are usually more successful if the cooperating countries are on similar levels of economic development and therefore the products demanded are similar. Another condition is production variety, which is usually lacking in cooperation between developing countries. Despite this, trade agreements are popular among African countries and many papers study their impact on intra-regional trade.

In accordance with Ray´s findings, Jordaan[13] studies intra-regional trade in multiple African RTAs and concludes that their effect on intra-industry trade is positive, however, weaker than expected by economic models' predictions. The author proposes even closer cooperation within Africa to create bigger and more competitive economic blocs able to use economies of scale and regional competitive advantage. He even calls for uniform economic, fiscal, social and sectoral policies in all of Africa.

According to Geda and Seid,[14] a comparatively lower share of intra-regional trade in Africa is caused by the combination of weak infrastructure and weak productivity, as well as the lack of complementarities in trade. The potential for intra-regional trade in Africa could be realized not by further liberalization of trade, but by creating the potential for trade: by providing infrastructure, "*harmonizing macroeconomic policies, setting up conducive institutions, as well as developing trade facilitation and diversification plan at continental and regional levels*."[15]

After studying the effects of the Economic Community of West African States (ECOWAS) trade agreement on trade among member states, Shuaibu[16] concludes that the agreement has intensified intra-regional trade. The positive effect was further reinforced in countries with good governance and infrastructure. Interestingly, trade liberalisation had differing impacts on trade with different types of goods. While lowering trade restrictions increased intra-regional trade with manufactured goods and primary products, the effect was the opposite for agricultural produce. Shuaibu therefore suggest caution in further liberalization in the agricultural sector.

The results of the study by Keane et al.[17] on the Southern African Development Community (SADC) led to contrary results. Based on trade data, the authors conclude that despite lifting tariffs among member states, non-tariff barriers prevent the growth of intra-SADC trade. Therefore, non-tariff measures should be included as a key component of further liberalisation negotiations and monitored to limit them.

Ngepah and Udeagha[18] studied the effects of trade liberalisation in Africa on five different RTAs. They conclude trade creation and no trade diversion in all cases. In most RTAs the positive effect on trade creation grew over time, only in the case of the East African Community (EAC), the positive effects declined continuously. In most cases, the trade increased not only among member states but also with third countries. These results suggest that RTAs in Africa foster trade within African regions, within Africa as a whole and with other

[11] RODRIK, D. (2018): What Do Trade Agreements Really Do?
[12] RAY, D. (1998): Development Economics, pp. 725-746.
[13] JORDAAN, A. C. (2014): Regional integration in Africa versus higher levels of intra-Africa trade.
[14] GEDA, A. – SEID, E. H. (2015): The potential for internal trade and regional integration in Africa.
[15] Ibidem.
[16] SHUAIBU, M. (2015): Trade Liberalization and Intra-Regional Trade: A Case of Selected ECOWAS Countries.
[17] KEANE, J. et al. (2010): Impediments to Intra-Regional Trade in Sub-Saharan Africa.
[18] NGEPAH, N. – UDEAGHA, M. C. (2018): African Regional Trade Agreements and Intra-African Trade.

parts of the world. Therefore, regional cooperation within Africa should be supported and viewed as potentially beneficial for global trade liberalization efforts.

According to Umulisa,[19] the East African Community could further boost the level of intra-regional trade by implementing the proposed monetary union among its members. This could increase the amount of intra-regional trade by more than 120%. She suggests the creation of the East African Monetary Institute to coordinate member states policies towards a single currency while analysing in detail the crisis in the European Monetary Union to prevent such problems in the future.

Further improvement in coordination of trade regulations could have a stronger positive impact on intra-regional trade than improvements in physical transport infrastructure, as Tandrayen-Ragoobur et al.[20] concluded in their study of the impact of infrastructure on trade within Africa. Meanwhile, the quality of hard infrastructure still improves international trade volumes. Quality of energy infrastructure has the highest impact, higher than quality of transport or ICT infrastructure. The authors therefore stress the importance of improving all aspects of hard and soft infrastructure at the same time.

3 Current state of intra-African trade

Intra-African trade is directed by an overlapping system of regional trade agreements with varying degrees of integration. This complicated system should be improved by the introduction of the African Continental Free Trade Area or AfCFTA. This agreement, signed in March 2018, now has 54 signatories (only Eritrea has not signed yet) and 47 countries have ratified the agreement.[21] Although officially trading under the rules of the AfCFTA started on 1st January 2021, only selected countries that fulfilled the legal requirements can now trade with a selected range of products under the rules of AfCFTA.[22]

Currently, international trade in Africa operates under the rules of eight existing RTAs that AfCFTA should replace eventually. These RTAs are the Arab Maghreb Union (AMU) with five member states, the Common Market for Eastern and Southern Africa (COMESA) with twenty-one members, Community of Sahel-Saharan States (CEN-SAD) with twenty-nine member states, the East African Community (EAC) with six member states, Economic Community of Central African States (ECCAS) with eleven member states, Economic Community of West African States (ECOWAS) with fifteen member states, Intergovernmental Authority on Development (IGAD) with eight member states and Southern African Development Community (SADC) with sixteen member states. It is clear from these numbers that the membership of these RTAs is overlapping. In none of these RTAs, the membership is exclusive, although ten African countries are members of only one RTA, thirty-two countries are members of two RTAs, eleven countries are members of three RTAs and only Kenya is member of four RTAs: COMESA, CEN_SAD, EAC and IGAD.[23]

International trade of African countries is strongly influenced by its level of economic development, export concentration and historical colonial relations.[24] According to UNCTAD[25] data, in 2022 African countries exported slightly more to developing countries (53%) than developed countries[26] (47%). Only 13.7% of these exports go to other African countries, which is the second lowest level of intra-regional trade after Oceania with 4.3%. Africa significantly

[19] UMULISA, Y. (2020): Estimation of the East African Community's trade benefits from promoting intra-regional trade.
[20] TANDRAYEN-RAGOOBUR, V. et al. (2022): Infrastructure and intra-regional trade in Africa.
[21] AfCFTA (2024): AfCFTA.
[22] LAWAL, S. (2024): Can Africa's new free trade treaty boost business on the continent?
[23] Africa Regional Integration Index (2024): Regional Economic Communities.
[24] ZAGORŠEKOVÁ, N. (2023): Trade Relations of Sahel Region Countries.
[25] UNCTAD (2023): UNCTAD Handbook of Statistics 2023.
[26] All European countries + USA, Canada, Australia, New Zealand, Israel, Japan, South Korea.

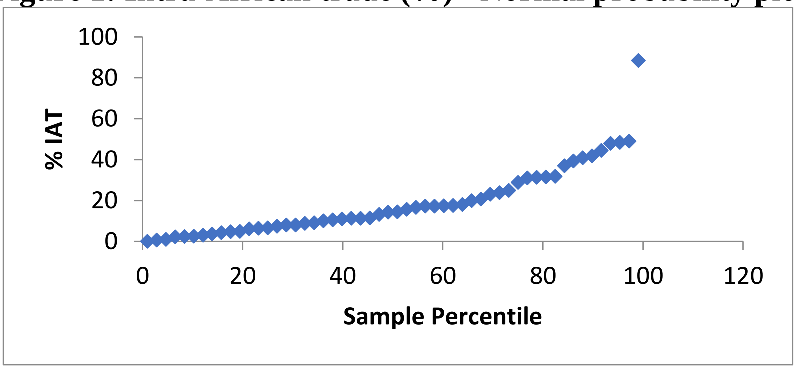
lags behind not only Europe (68.4%) but even after Latin America and the Caribbean (14.9%). The biggest export destinations for merchandise trade from Africa are China (15.78%), the United Arab Emirates (6.84%), India (6.79%), USA (6.09%) and Spain (5.49%). Only for six African countries the biggest export partner is another African country: Djibouti (exports to Ethiopia), Kenya (to Uganda), Eswatini (to South Africa), Lesotho (to South Africa), Namibia (to South Africa) and Senegal (to Mali).[27]

Overall, the biggest exporter in Africa in 2022 was South Africa, exporting. goods for over 121 billion USD, of which over 25 billion USD was exported to other African countries (also the highest value of all African countries). This means that 20.65% of South African exports are intra-African, which surpasses the African average by about 7 percentage points. There are many countries with a higher proportion of intra-African exports than South Africa. Almost 90% of exports from Eswatini stay in Africa (88.5%), with the most important African export partners of Eswatini being South Africa (59.07%), Kenya (4.84%) and Nigeria (3.61%).[28] Eswatini's share in intra-African is the highest, followed by Djibouti (49.08%) and Togo (48.44%). On the other extreme, we have countries with the lowest share of intra-African trade such as Equatorial Guinea (0.07%), Eritrea (0.69%) and Libya (1.02%).[29]

We can compare the three countries with the highest and lowest intra-African trade shares with African averages based on export concentration[30] and level of GDP p.c.[31] Eswatini (6.913), Djibouti (6.721) and Togo (6.424) have an Export Concentration Index lower than the African average (7.453), which means their exports are more diversified. This is in accordance with the theory that more diversified exports positively correlate with higher levels of intra-regional trade. Also, the Export Concentration Index in Equatorial Guinea (8.258), Eritrea (8.433) and Libya (8.040), countries with the lowest intra-African trade, is higher than the African average.

The results in comparison with GDP p.c. are more ambiguous and do not follow the simple theory, that countries with higher levels of GDP p.c. have a higher share of intra-regional trade. While GDP p.c. levels of Eswatini (3,986.9 USD) and Djibouti (3,136.1 USD) are over the African average (2180 USD), so are the levels in Libya (6,715.1 USD) and Equatorial Guinea (7,182.3 USD). Meanwhile, Togo (942.6 USD) is under the African average, as well as Eritrea (643.8 USD). However, Eritrean GDP p.c. value is from 2011, as this is the latest available data point. These results are mainly skewed by the fact that Libya and Equatorial Guinea are oil exporters, which makes them richer while their exports are more concentrated.

Figure 1: Intra-African trade (%) - Normal probability plot



Source: Own calculation based on UNCTAD (2023): Merchandise trade matrix, annual and BRUCKNER, M. (2023): Measuring export concentration for identifying least developed countries.

[27] Harvard Growth Lab (2024): The Atlas of Economic Complexity.
[28] Ibid.
[29] UNCTAD (2023): Merchandise trade matrix, annual.
[30] BRUCKNER, M. (2023): Measuring export concentration for identifying least developed countries.
[31] The World Bank (2024): GDP per capita (current USD).

Correlation analysis shows that the correlation between the Export Concentration Index and the share of intra-African trade is moderate and negative (- 0.39). Higher values of the Export Concentration Index are therefore correlated with lower levels of intra-African trade. These were the results of correlation analysis on 53 countries. We removed data for Eswatini as it was an outlier (Figure 1) with a very high level of intra-African trade. This can be explained by its geographical position as an enclave within the territory of South Africa. The correlation between the levels of GDP p.c. and the share of intra-African trade was not statistically significant.

Conclusion

In this paper, we focused on intra-regional trade in Africa and its preconditions and specific barriers. The aim of this paper is to identify the specifics of intra-regional trade, describe its specific effects in Africa and outline the current state of intra-African trade at the time of initiation of an important agreement, The African Continental Free Trade Area (AfCFTA), that should encompass all eight existing regional trade agreements in Africa.

In the first part of the paper, we summarize the literature on intra-regional trade in general and in Africa specifically. The second part of our paper is based on trade data of African countries. Using correlation analysis on the share of intra-African trade, Export Concentration Index and GDP p.c. we found a moderate negative correlation between the share of intra-African trade and the Export Concentration Index, that was statistically significant. This result is in accordance with theoretical assumptions that describe African countries' export structure as a barrier to further development of significant intra-African trade.

This research is part of a wider project studying African trade relations with different parts of the world economy and changes in the position of different trade partners in Africa.

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