





CENTRAL AND EASTERN EUROPE BETWEEN WEST AND EAST:  
ECONOMIC, POLITICAL, AND CULTURAL TRANSFORMATIONS  
IN THE 21ST CENTURY

Edited by BALÁZS FAJT, CSABA JÁKI, ESZTER CSÁNYI

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## INTRODUCTION

This volume brings together a selection of peer-reviewed papers presented at a recent academic conference showcasing research that reflects the complexity, transformation, and challenges facing Central and Eastern Europe particularly the Visegrad Four (V4) countries in an era of global uncertainty, regional realignment, and policy rethinking. The contributions span a diverse range of topics, from historical macroeconomic analysis and fiscal policy coordination to gender equality, sustainability reporting, and geopolitical shifts. What unites them is a shared commitment to understanding how Central and Eastern European countries are navigating the interplay between tradition and transformation, dependence and autonomy, West and East.

The volume is organized into four thematic sections to reflect a logical progression from macro-level historical and structural contexts toward more specific institutional, corporate, and cultural perspectives.

The first section, Historical and structural contexts of Central and Eastern Europe, includes contributions that trace the long-term economic trajectories and institutional characteristics of the V4 countries. Drawing on newly available macroeconomic data and critical perspectives on EU integration, these studies lay the groundwork for understanding the region's contemporary challenges.

The second section, Economic policy and governance in the Visegrad countries, presents analytical work focused on the inner workings of economic policy-making. These papers highlight the challenges of coordinating fiscal and monetary policy in Hungary and assess the implementation of gender quotas in V4 corporate governance structures, offering timely reflections on the gap between EU-level directives and national realities.

In the third section, Regional development, business strategy, and sustainability, the spotlight shifts to the role of firms, multinational enterprises, and stakeholder expectations in shaping economic outcomes. The contributions explore both theoretical frameworks, such as the role of economic micro-agents in diversification, and

practical issues, including the growing importance of sustainability reporting in corporate decision-making.

The final section, Geopolitical realignments and cultural identity, turns attention to the broader regional and cultural contexts that influence political and social dynamics. One paper examines the reshaping of power structures in the South Caucasus following the end of the Nagorno-Karabakh conflict, while another offers a literary and philosophical reflection on Central European identity through the works of Claudio Magris.

Together, these eight papers reflect both the intellectual richness of the conference and the interdisciplinary depth of current research in economics, political science, cultural studies, and regional development. It is our hope that this volume not only captures the moment in which these ideas were presented but also serves as a springboard for further scholarly inquiry and cross-disciplinary dialogue.

We extend our deepest thanks to all the authors, reviewers, and contributors who made this collection possible, and to the institutions and colleagues whose support sustained the collaborative spirit of the conference and its publication.

*The editors*

**PART I:  
HISTORICAL AND STRUCTURAL CONTEXTS  
OF CENTRAL AND EASTERN EUROPE**



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# **ANALYSING THE HISTORICAL MACRO TRENDS IN THE V4 COUNTRIES BASED ON THE GLOBAL MACRO DATABASE**

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## **INTRODUCTION**

In this paper the historical macroeconomic performance and stylized facts are analysed in the Visegrad economies based on the recently published Global Macro Database. The database includes historical records and projections of the world economies based on 113 data sources. The dataset was released just recently, hence, comprehensive macroeconomic research focusing on trends in V4 countries is not available yet.

The goal is to review various trends and breaks of V4 economies. Previously, harmonized historical records were typically available for aggregates like GDP or population, while in this database various data are available for components directly (e.g. GDP components) or indirectly (e.g. monetary / fiscal policy indicators) linked to macroeconomic performance. In particular, the following hypotheses were tested based on the historical records available:

- *Hypothesis 1 – acceleration, GDP growth*: based on mainstream economics output increases relatively stable, still, according to Hausmann et al. (2005) growth accelerations are common. Similarly, growth accelerations are expected to have been occurred in the Visegrad group, as well, based on the historical records, which are tested based on Hausmann’s methodology.
- *Hypothesis 2 – regime change*: most macroeconomic variables are showing a *structural break* following the transition to market economy of 1989 and we can assume that several fundamentals show materially different trends before / after 1989. Structural break analysis was conducted based on the methodology proposed by Bai and Perron (2003).

- *Hypothesis 3 – stylized facts: within GDP, investment ratio is the most volatile component, while consumption is the most stable item; unemployment rate highly and negatively correlates with GDP. Investment and consumption are procyclical, i.e. positively correlate with GDP growth. Descriptive statistics have been applied to test these hypotheses.*

In the database more limited historical records are available for less developed countries compared to more developed ones. In fact, Germany was chosen as a benchmark / developed economy to compare the V4 data with because historical data are typically available from the first half of 20s century for Germany and the country was also impacted by the regime switch. Still, we can see that some data are available from ~50s or even from earlier periods for the V4 economies. Hence, we can use this database to have some insights on historical records of the V4 group. Projections are also presented when available but are not reviewed in this paper.

The paper is organized as follows. The next section presents the methodology, followed by an overview of the database. The subsequent section is dedicated to the empirical research. Finally, an overview of findings concludes the paper.

## **METHODOLOGY**

Descriptive statistics have been applied like historical average, standard deviation and correlation to understand growth trends/differentials and macroeconomic stylized facts. Following the methodology proposed by Hausmann et al. (2005), growth accelerations have been assessed based on the following criteria:

- an increase in per-capita growth of 2 percentage points or higher;
- growth has to be sustained for at least eight years;
- post-acceleration growth rate has to be at least 3.5 percent on a yearly basis;
- post-acceleration growth exceeds the pre-acceleration data.

Structural break analysis was also performed based on the methodology proposed by Bai and Perron (2003) for simultaneous estimation of multiple breakpoints. This approach minimizes the residual sum of squares based on multiple breakpoints assuming constant regression coefficients in each regime, i.e. coefficients are shifting from one stable regression to another one.

## *DATA*

Müller et al. (2025) recently compiled the so-called Global Macro Database, which contains historical records of 243 economies. The aggregated database includes harmonized, historical datasets with unparalleled coverage. The main features of the database are as follows:

- open-source, regularly updated and harmonized database
- 113 data sources: including IMF, World Bank and OECD; 32 contemporary sources and 81 historical datasets
- 243 countries
- 46 macro variables: variables include, among others, GDP, inflation, government finance, trade, unemployment and interest rates data
- Data range: trends from the origins of modern data collection to projected estimates for 2030; first data available from 1086.

The main macro variables have been selected for the comparison analysis and the start dates were chosen based on the first data point available from the V4 group. No data adjustments were applied (e.g. no interpolations / FX conversion, Czechoslovakian / East German data were ignored).

## *EMPIRICAL ANALYSIS*

Various stylised facts are available in macroeconomics related to long-run economic growth (Kaldor, 1963) or business cycle fluctuations (see for instance Cesaroni et al., 2011). Historical records are not available (yet) in the database for all relevant drivers like total factor productivity, real wages or even production factors. At the same time, various expenditure side components, data on government finance

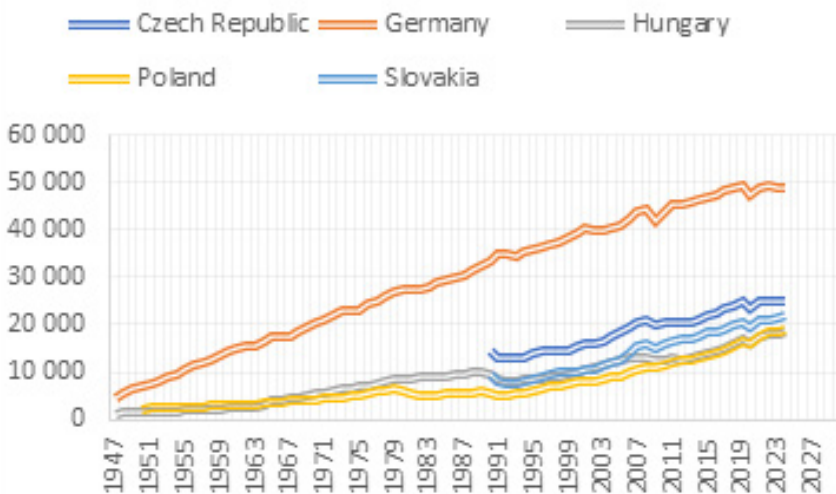
and also on external trade are available, hence, short-term business cycle fluctuations can be reviewed from various angles.

## GDP GROWTH

V4 economies showed rapid GDP per capita growth during the last few decades. Although the recent trend in Germany is not as dynamic compared to the current performance of the V4 group, the long-run growth trend of the group is slightly below the pattern observed in Germany.

Limited historical records are available before the regime change of 1989, but based on these data Hungary's long-run growth was the highest: average growth rate between 1948 and 1989 was around 6%. At the same time, GDP per capita growth rate is slower after the regime change, while Poland shows a clear accelerating trend in the past few decades. Data on Czechia and Slovakia are not available before 1990; some historical records from Czechoslovakia are available but GDP in USD is not among these indicators (Figure 1).

Figure 1: Real GDP per capita (USD / head)



Source of data: Global Macro Database (2025)

## GROWTH ACCELERATIONS AND STRUCTURAL BREAKS

One fundamental question in terms of analysing growth trends whether economic growth is persistent, also whether it is accelerating or not. Growth accelerations have been assessed based on the methodology published by Hausmann et al. (2005), for details see Section 2.

Hausmann et al. (2005) found relatively frequent growth acceleration episodes based on the Penn World Database. According to the Global Macro Database, growth acceleration episodes were mostly common in Hungary following the Second World War, but these were common in Germany, as well. Following the transition to market economy growth acceleration episodes were not so common: we can observe acceleration till mid 2005 in Hungary and in early 2000 and around 2010 in Poland.

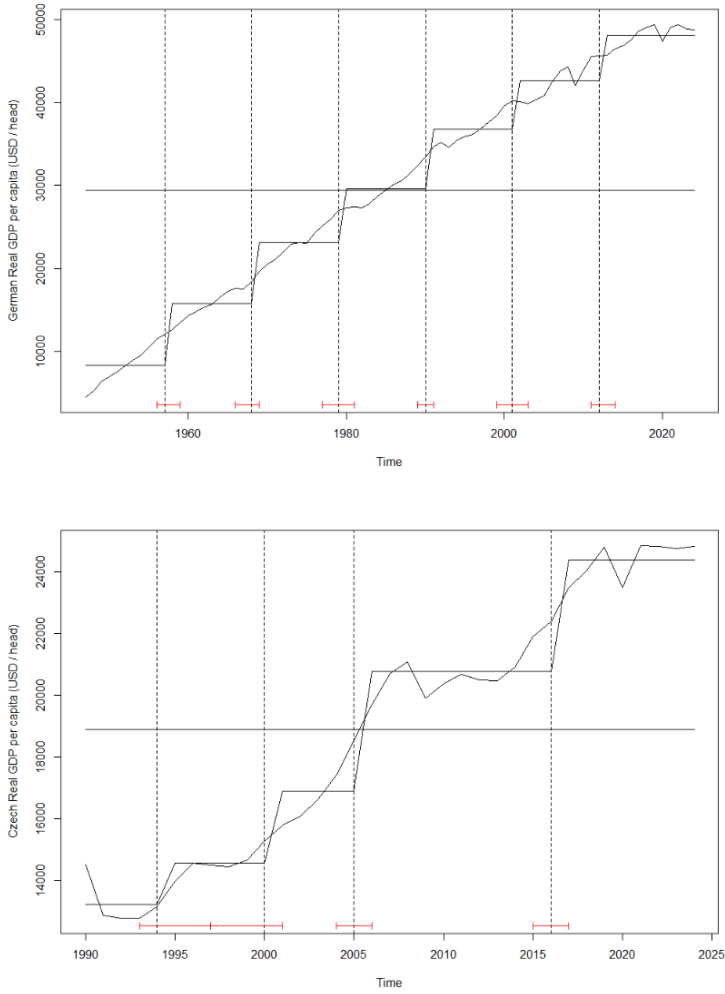
*Table 1: Growth accelerations and structural breaks*

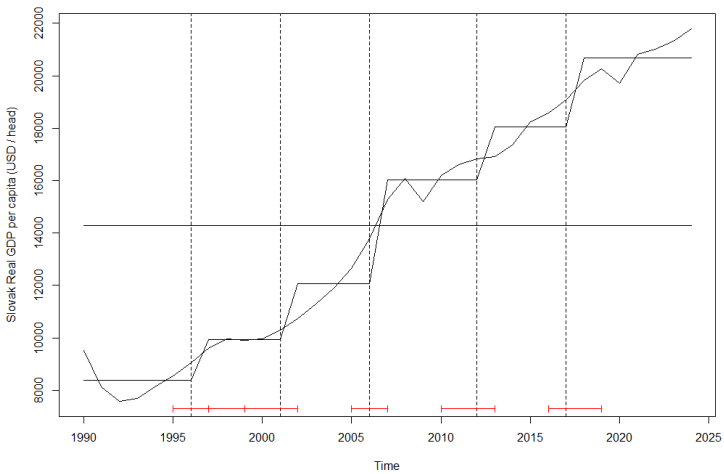
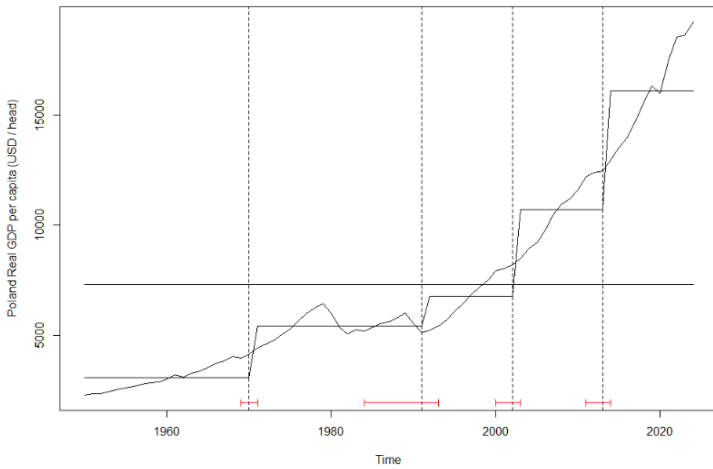
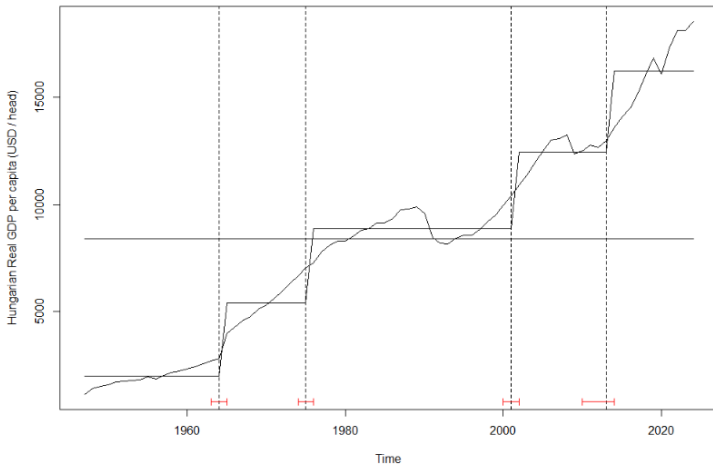
<b>Country</b>	<b>Average growth</b>	<b>Relative standard deviation</b>	<b># of accelerations</b>	<b>Start date</b>	<b># of structural breaks</b>
Czech Republic	1.6	228%	-	1991	4
Germany	3.2	123%	6	1948	6
Hungary	3.8	159%	15	1948	4
Poland	2.9	123%	3	1951	4
Slovakia	2.5	185%	-	-	5

*Source of data: Author's estimation based on Global Macro Database (2025)*

In addition to growth accelerations, structural break analysis was also performed to check how many breakpoints exist in the series. Several growth periods have been identified by using this approach, the number of breakpoints is smaller in case of Hungary, but we can identify several breakpoints in the Czech Republic and in Slovakia, as well.

Figure 2: Structural break analysis

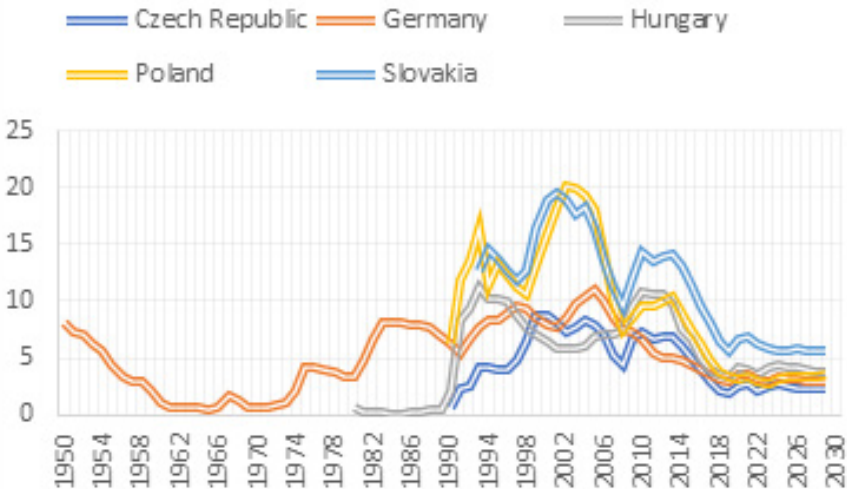




## UNEMPLOYMENT RATE

In parallel with relatively stable GDP increase, we can see that unemployment rate drastically dropped following the regime change and the crisis periods. In addition, the early post-transition period was also characterized by record inflation pressure (see section: Monetary and fiscal policy). Recently, the unemployment rate is around 3% in the region. Unemployment rate highly correlates with GDP growth: correlation is between -0.5 and -0.6, it is slightly lower in Poland (-0.3). This is intuitive, considering that lower unemployment rate leads to lower labour force contribution, resulting in lower production and output. Limited historical records are available for the unemployment rate: the 0% unemployment rate in Hungary before the regime switch is in line with the declared goal setting of full employment in the previous regime. Nevertheless, relatively stable and smaller unemployment rates are also recently visible in Germany, as well, compared to the first half of the sample of historical records.

Figure 3: Unemployment rate (%)

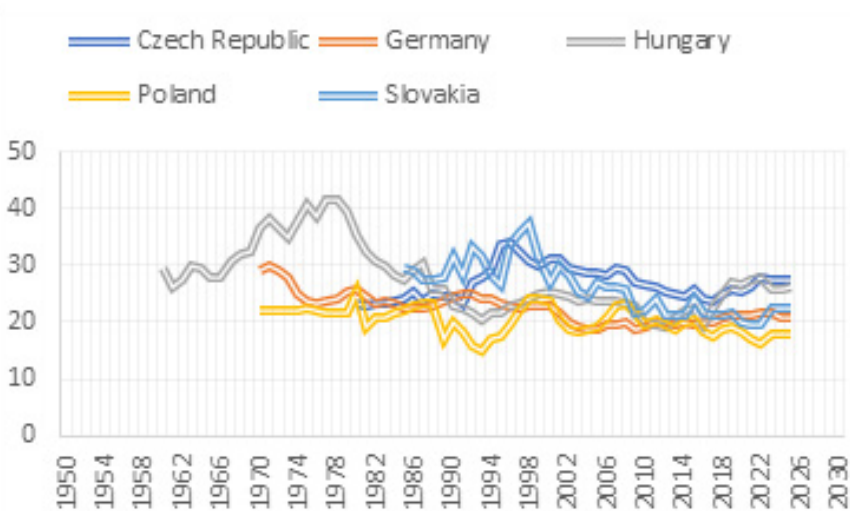


Source of data: Global Macro Database (2025)

## DOMESTIC DEMAND: INVESTMENTS

Understanding the structure of growth supports our better understanding of growth determinants. Higher GDP growth and growth accelerations are typically driven by higher investment rates, which is in line with the mainstream economic view, considering that stronger investments boost not only the capital accumulation but also the export performance, competitiveness and technological progress, as well. We can see an investment rate of ~20% in most economics following the regime switch. Hence, we can see somewhat more moderate investment ratios in the last few decades: historical investment ratios were higher not only in Hungary or Poland, but in Germany, as well. Note that this indicator is not a suitable proxy for diversification, for instance how competitive the investment products are / were after / before the regime switch.

Figure 4: Investment ratio (Gross Fixed Capital Formation / GDP, %)

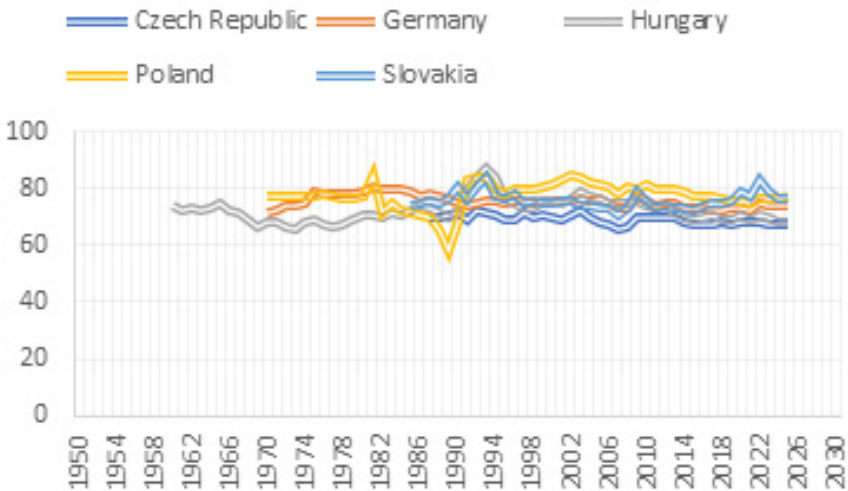


Source of data: Global Macro Database (2025)

## DOMESTIC DEMAND: CONSUMPTION

According to stylised facts, investment is more volatile than consumption, driven by smoothening behaviour of households and the volatile nature of business decisions impacted by market demand and profit outlook. This pattern is clearly the case in the V4 group, as well: consumption ratio is around 70-80% and this trend is pretty persistent and it is less impacted by the structural break of 1989. Further data on consumption are not available, but the demand for standard (non-durable) consumption goods is probably even more persistent compared to durable goods or services. We can see, however, some difference in terms of consumption habits among countries: in the Czech Republic consumption rate is slightly below 70% while in Poland it is close to 80%. German data are in line with V4 group data. Considering that consumption in percent of GDP is relatively stable and GDP per capita is increasing, this also supports the procyclical nature of consumption. This is more or less true for the investment ratio, as well, although the ratio decreased slightly.

Figure 5: Consumption ratio (Consumption / GDP, %)

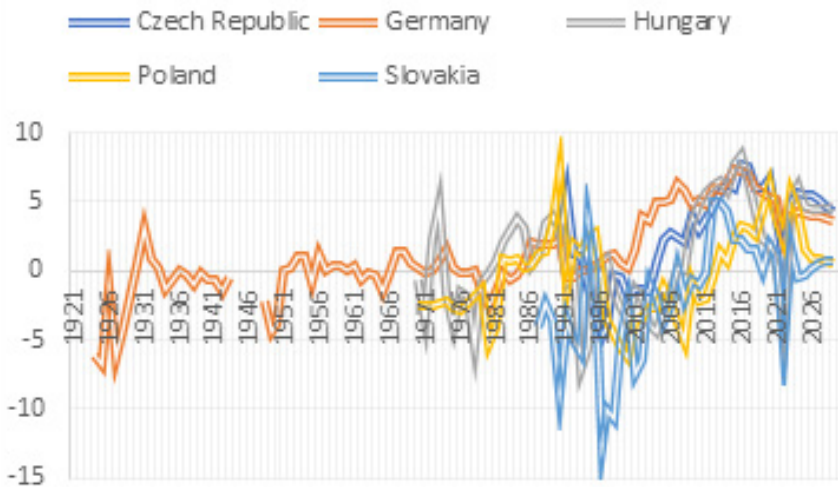


Source of data: Global Macro Database (2025)

## EXTERNAL BALANCE

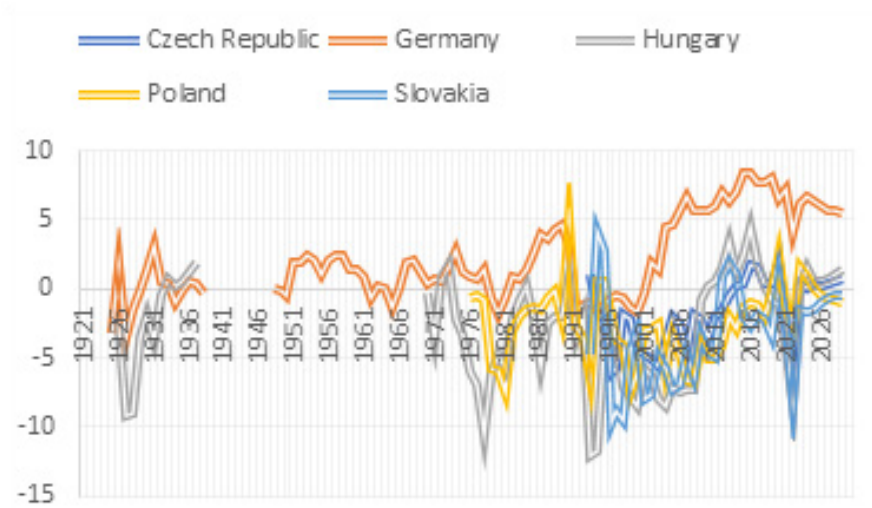
In most economies external trade balance was largely in deficit following the transition, mostly driven by decreasing output and growing inflation, also by the picking up of import demand. After the recovery we can observe slightly positive net export balances in the past few decades. This is in line with growing investment capacities, stronger competitiveness and currency depreciation. Compared to historical records from Germany and Hungary, both external balances (net export and current account) show stronger surpluses recently in both economies. This is also true once we ignore shocks like the Great Financial Crisis of 1929, the oil price crisis around 70s or the regime switch of 1989, which had negative impacts on the balances. In fact, although demand decreased sharply, import increased significantly due to rising inflation in several crisis periods.

Figure 6: Net Export ( $Export - Import$ ) / GDP, (%)



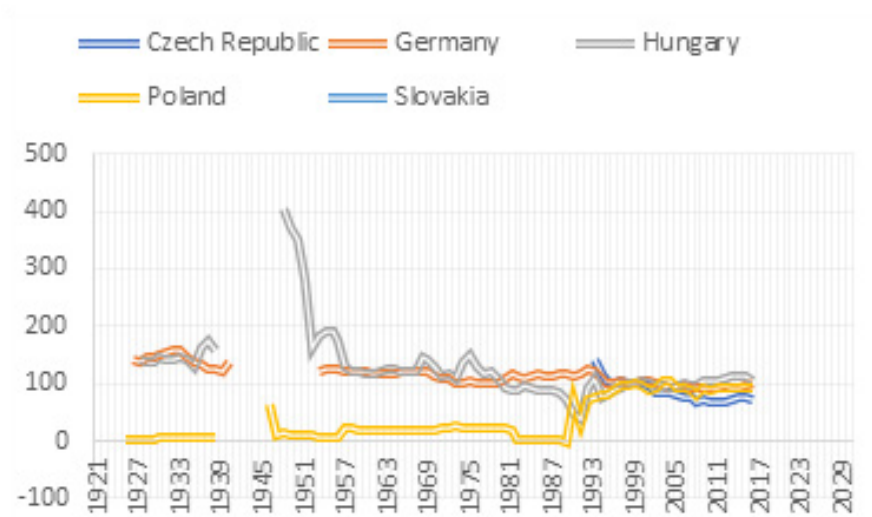
Source of data: Global Macro Database (2025)

Figure 7: Current Account (% of GDP)



Source of data: Global Macro Database (2025)

Figure 8: Real Effective Exchange Rate (%)

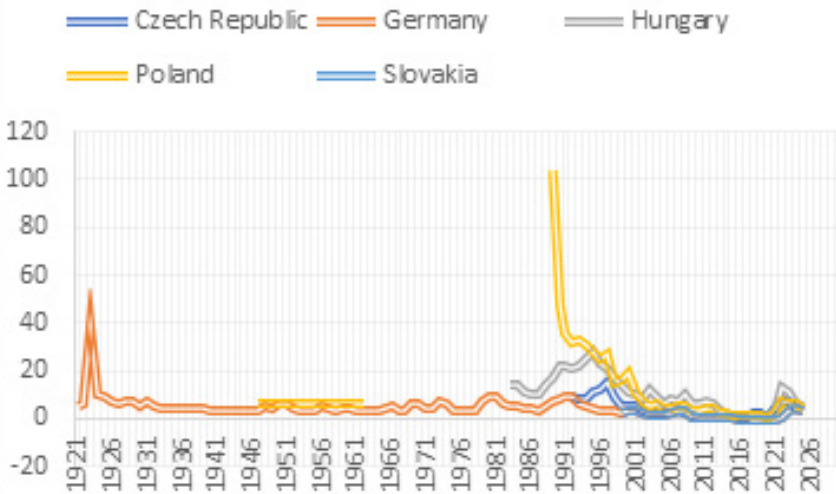


Source of data: Global Macro Database (2025)

## MONETARY AND FISCAL POLICY

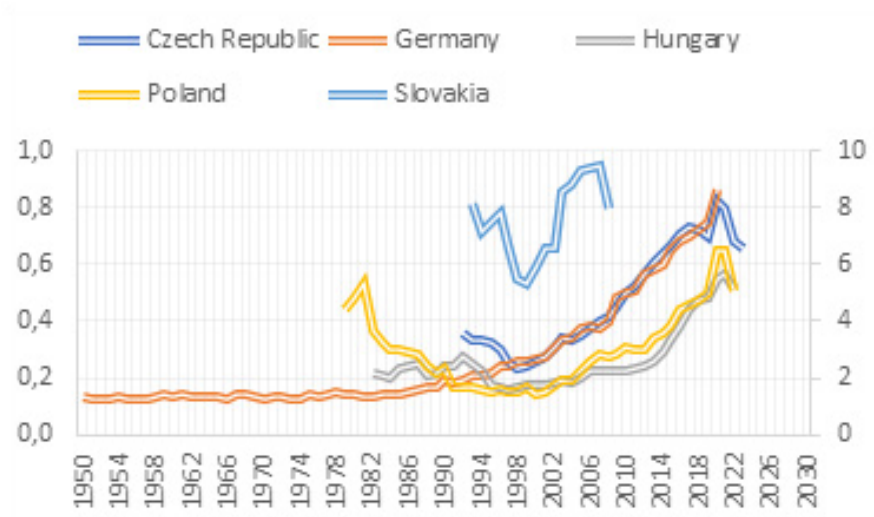
Following the transition of 1989, inflation increased drastically in the V4 economies, which was almost unprecedented based on the historical records available. Central banks increased interest rates, while fiscal stimulus was clearly present: government deficit and debt increased largely compared to previous levels in order to boost the economies. Following the transition period, fiscal balances improved, partly due to the stronger growth performances. Still, inflation is more dynamic in the past few decades. Compared to historical records, we can see that both monetary and fiscal stimulus is much more visible. In fact, debt ratios are around three times higher recently and the government balance is typically negative in the past few decades, while we can see some evidence of deficits close to 0% based on the historical records – in Germany, as well. Similarly, we can also see that money supply is much more dominant compared to historical records.

Figure 9: Central Bank Interest Rate (%)



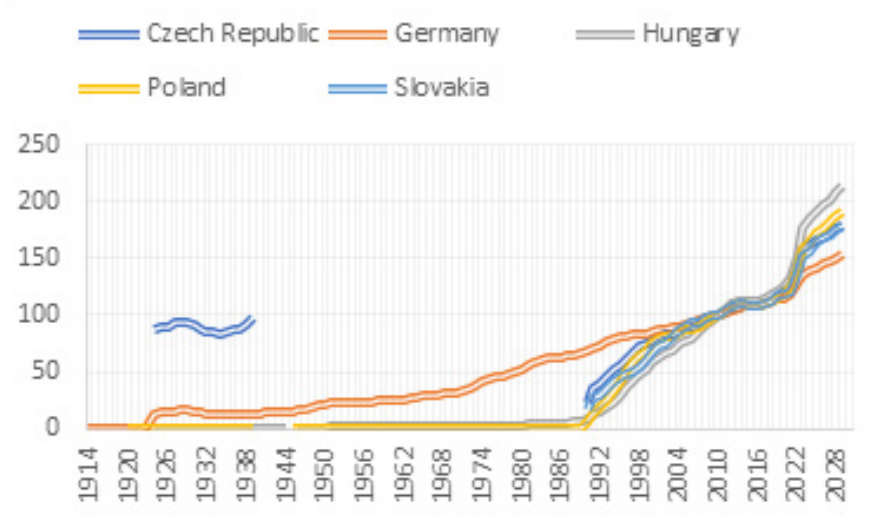
Source of data: Global Macro Database (2025)

Figure 10: Money Supply (M1 / nominal GDP, %)



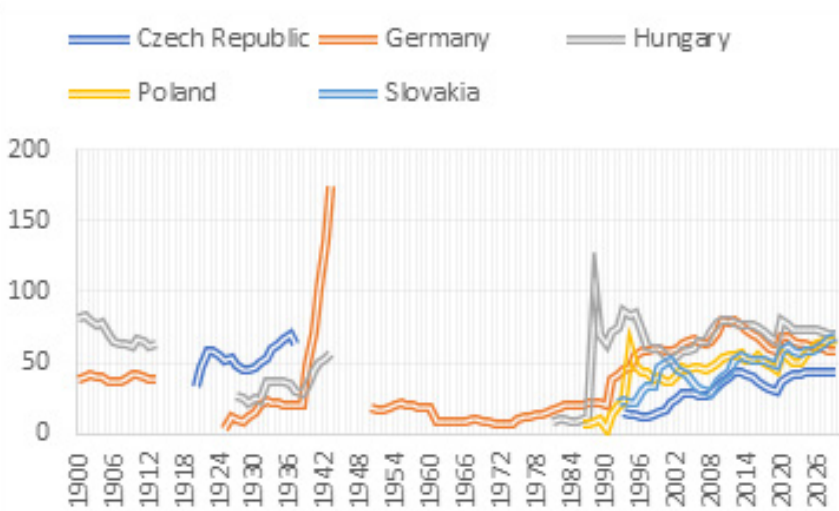
Source of data: Global Macro Database (2025)  
 Remark: Slovakia is on right scale

Figure 11: Consumer Price Index (%)



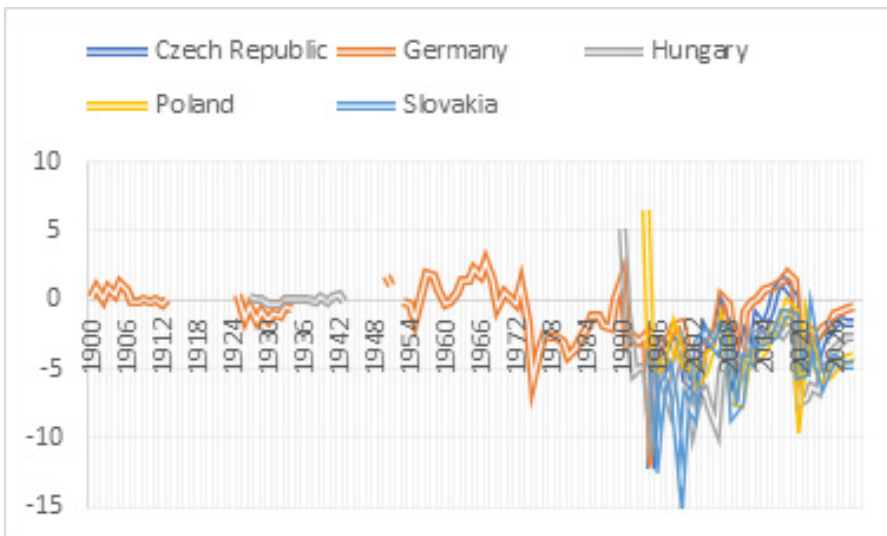
Source of data: Global Macro Database (2025)

Figure 12: General government debt (debt / GDP, %)



Source of data: Global Macro Database (2025)

Figure 13: General government deficit (deficit/GDP, %)



Source of data: Global Macro Database (2025)

## CONCLUSION

In this paper historical macroeconomic records of the Visegrad Group are reviewed based on the recently published Global Macro Database. The analysis was performed from two angles: by comparing recent trends to historical records and to a control group (Germany). Based on the historical records available we can see that GDP growth is roughly stable and growth accelerations were present quite frequently. In fact, some of these accelerations occurred after the regime switch to market economy in 1989. This confirms hypothesis 1.

GDP growth is driven by several components based on the expenditure side:

- consumption was relatively stable in the past few decades, also compared to historical records – consumption ratio is around 70-80%
- investment rate was relatively volatile and ~20% recently, which is more moderate compared to historical records
- external balances show stronger surpluses compared to historical records.

GDP growth was clearly negatively co-moving with unemployment rate and both monetary / fiscal stimulus increased largely in the past few decades to counter inflation / boost economies. In fact, debt ratios are around three times higher recently and the government balance is typically negative in the past few decades, while we can see some evidence of deficits close to 0% based on the historical records. Hence, structural break is clearly visible for most variables following the transition to market economy of 1989. These confirm hypothesis 2 and 3.

All data might be subject to measurement error, which is also true for historical records, considering that the definition of macroeconomic variables was not (fully) established and more limited data sources were available back then. This is also true when we compare data before / after the regime switch of 1989: for instance, data showing 0% unemployment rate or booming investments before 1989 are also subject to measurement error. On the top of that, looking at aggregated data only may not be sufficient to fully

understand macroeconomic trends, in particular when the key policy / fiscal / macroeconomic targets are considerable different in these regimes. Cross sectional comparison might be also challenging or limit data availability, considering that borders / number of countries are changing.

Still, we can also argue that economic transactions used to be simpler in historical records and these could have been tracked easier. For instance, agriculture was most probably the biggest driver of GDP growth before the industrial revolution and the growth contribution of services was probably less material until the second half of 20s century. In addition, the large number of datasets used to compile the database, the regular updates and harmonization of data are improving the data quality of the Global Macro Database.

Further data like GDP components not only from expenditure but also from income and production side could also improve data quality of the database and could provide further key insights on the long-run growth performance. All in all, historical records can provide deep insights but we have to take all conclusions carefully when looking at these records.

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## **THE USELESSNESS OF USEFUL KNOWLEDGE: THE VISEGRAD COUNTRIES IN TRANSITION**

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### **INTRODUCTION**

Twenty years ago, the countries known collectively as the ‘Visegrad countries’ or ‘Visegrad 4’ – Poland, the Czech Republic, Slovakia and Hungary – joined the European Union. Of course, they were not the only Central European accession countries at that time. However, the Visegrad 4 had already shared the intention of tackling common problems together since 1991, even if a formal structure had not been created specifically for this purpose. If there are common problems, with their accession to the EU these countries have also committed themselves to common goals.

At the time of accession, Article B of the Maastricht Treaty formulated as economic objectives of the Union

“(..) to promote economic and social progress which is balanced and sustainable (...) through the strengthening of economic and social cohesion and through the establishment of economic and monetary union, ultimately including a single currency in accordance with the provisions of this Treaty” (Maastricht Treaty).

The Article 2 of the Treaty of Lisbon states in somewhat more detail that the Union shall

“(..) establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance”

and “(..) shall promote economic, social and territorial cohesion” (ibid.). In a nutshell, the most important goals associated with joining the European Union were and are to achieve a similar level of

prosperity and economic competitiveness as the relatively stronger, western EU countries.

Have they come any closer to these goals in the last twenty years? In order to answer this question, the respective discourse often follows simplistic empiricism and, for example, analyses the extent and development of disparities on the basis of the latest Eurostat data or, even less critically, by referring to standard competitiveness rankings. However, neither of these initially says much about the *causes* of the development that has taken place. This essay would therefore like to approach the question from a different perspective by assuming, on the one hand, that the cause of economic prosperity is the correct use of economically relevant knowledge. On the other hand, foreign trade data as a feasible indicator for economic interdependence can be used not only to make a statement about the realisation of the internal market, but also about how much knowledge the Visegrad countries have been able to use economically in the last two decades.

The first section outlines sketchily the importance of knowledge in the market economy. It first presents the perspective of the Austrian School and then the approach proposed by Hausmann et al. (2013) for measuring “economic complexity”. The following section applies the latter, using the corresponding data sets from the Harvard “Growth Lab” (2024), to describe the development of the Visegrad countries since their accession to the European Union. In a final step, a regional economic perspective is added in order to draw some general conclusions.

## **KNOWLEDGE AND THE ECONOMY: TWO PERSPECTIVES**

This section deals with the connection between knowledge and prosperity from two different perspectives. One of the most important factors for prosperity is undoubtedly knowledge and the ability to utilise it economically. After their accession and against the background of the “Lisbon Strategy” (see Presidency Conclusions 2000<sup>1</sup>) and the “Europe 2020” agenda (see European Commission

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1 In this document the attribute “knowledge-based” is used twelve times in connection with “economy” and “society”.

2010<sup>2</sup>), it was therefore a central economic policy challenge for the young Eastern European EU countries in particular to develop into so-called ‘knowledge economies’. However, there is no consensus on what a ‘knowledge economy’ actually is.<sup>3</sup>

*Prima facie*, it is obvious that economies in which prosperity is not primarily generated through the provision of primary goods, but through an economy based on the division of labour in several sectors, exploit the potential of specialisation. This potential – to put it in a nutshell, following Adam Smith – lies in productivity gains that come about through increased knowledge. In this respect, the reasoning used in the above-mentioned agendas of the European Union may be consistent: if there is to be more prosperity, more knowledge is needed. Of course, it is not quite that simple. Let us take a look at this connection and focus in the first step on the role of knowledge in the economy from the perspective of the Austrian School, in order to deal in the second step with the role of the division of labour and trade, on the basis of which the role of knowledge mentioned here can be understood quite well empirically.

## AUSTRIAN SCHOOL

The economy as a subsystem of society can be understood as a social technique for solving the problem of scarcity. In order to reduce scarcity, one must know what scarcity is and how to obtain the goods or services that reduce this scarcity. Barter economies are therefore severely limited in their capacity to reduce scarcity, as their

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<sup>2</sup> The very wording of this document published by the European Commission, which aims to formulate a strategy “for smart, sustainable and inclusive growth”, is remarkable. Europe 2020 inevitably follows on from the dismally failed Lisbon Strategy. The word “knowledge”, which could perhaps be interpreted too concretely against the backdrop of the obvious complete irrelevance of the former agenda, now appears nine times; the adjective “smart”, on the other hand, a whole 27 times.

<sup>3</sup> Marin (2023) provides a profound overview of the literature on the topic, which clearly shows that the scientific discourse only expanded considerably in quantitative terms after 2008 – almost a decade after the first announcements of the European Council – only to die down again quite suddenly after 2015.

participants, if they need arrowheads, for example, but can give away shells at the same time, must know the exact barter partner for whom the reverse is true. In this respect, the actually revolutionary effect of money is that it eliminates this “double coincidence of wants under barter” (Gerba & Rubio 2019, p. 37), allowing scarcity to be abstractly encoded and communicated in prices, i.e. expressed in countable units and thus enabling the division of labour and specialisation. The coordinative capacity of the money-based economy makes it possible to use more knowledge dispersed among any number of participants and to create more knowledge through specialisation. This improves supply and creates prosperity.

This is the core problem of the so-called “Austrian School”, which measures the relative success of an economy – in today’s terminology, its competitiveness – by its capacity to process knowledge.<sup>4</sup> Knowledge is a very general category, which in the broadest sense refers to both *know what* and *know how*. In this context, Friedrich August von Hayek (1968) spoke of competition as a “discovery procedure”, because competition in markets puts pressure on participants to search for the best possible solution at all times, with a view to customer requirements, processes and all economically relevant parameters.

More knowledge can therefore make individual economic players relatively more successful. But what about entire economies or societies? Everything that has an influence on a payment or relevant non-payment is economically relevant.<sup>5</sup> Although this is obvious, it is not unproblematic from a theoretical point of view insofar as cultural institutions – such as the sheer imperative to improve oneself or something – are also part of the immaterial prerequisites (commonly known as ‘knowledge’) of an economically successful society. Which

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4 This statement is admittedly extremely abbreviated, but must suffice for the focus of this essay. There is a wealth of literature on the by no means uniform position of ‘the’ Austrian School. A more recent overview is provided by Godart-van der Kroon / Salerno (2022), while Aimar (2009) also offers a good approach; the provocative contribution by Nieto (2023) is concise and instructive and focuses on the problems of digitalisation.

5 This assumption is based on Luhmann’s (1982) systems theory approach, but will not need to be theorised further for the purposes of this essay. See also Baraldi et al. (2021) for a recent introduction.

knowledge pays off in monetary units, however, is always uncertain – regardless of the individual effort required to obtain this knowledge.

A famous example of the high degree of uncertainty in this context, which is a serious burden for every kind of policy dealing with knowledge, was formulated by Abraham Flexner in his 1939 essay “The Usefulness of Useless Knowledge”, in which he emphasised that playful basic research by mad scientists, which is not driven by market signals, can certainly lead to discoveries that bring about far-reaching economic changes and thus, economic progress. At first glance, the knowledge acquired in science seems just as “useless” as the implicit knowledge of cultural norms appears to be – it is sometimes only in retrospect that the concrete benefit of knowledge can be understood.

In view of just these few aspects, it is not surprising that the difficulty of adequately empirically assessing the importance of knowledge for the prosperity of societies has never been satisfactorily overcome. Nevertheless, it is worth noting that generalised approximations also speak a clear language. For example, the significant correlation between the World Bank’s “knowledge economy index” (-2012) and GDP (see Pawlowski & Edvinsson, 2012, p. 17). Empirical approaches inevitably have to work with proxy variables, because either the economically relevant knowledge is already specifically priced in anyway, or it has simply not yet been discovered by the market: which scientist would imagine being faster? That would be a “pretence of knowledge” (Hayek, 1989). The politicians responsible do not have this modesty and this is also the reason why the above-mentioned agendas seem to want to put the cart before the horse.

## **ECONOMIC COMPLEXITY**

The concept of “economic complexity” presented by Hausmann et al. (2013) offers a particularly elegant empirical approach. Similarly to the Austrian School, they start from the central problem that knowledge is dispersed, in “teams, organisations and markets” (ibid.,

8), “embedded in brains and human networks” (ibid.).<sup>6</sup> Just as the World Bank’s Knowledge Economy Index established a connection with people’s education, Hausman et al. (ibid.) also point to a progressive differentiation process, which can be seen in the number of different higher education degrees worldwide (ibid., 16).

With regard to the economically relevant knowledge mentioned above – “productive knowledge” in Hausmann et al. (2013, p. 7) – economies differ in that they have more or less of it. Economies also have different capacities to combine the available knowledge. Quantity, diversity and combinability are the decisive parameters, and Hausmann et al. (2013) use an obvious term to describe the extent to which the combination of these three takes on “complexity”, in the sense of the degree of economically usable knowledge in a society.

One of the advantages of this approach is that this complexity can be understood in terms of the goods that are produced in an economy. This is because manufactured goods can be understood as “vehicles of knowledge” (ibid, 15),<sup>7</sup> in line with the Austrian School. The economic significance of this knowledge can hence be easily understood on the basis of export data.

If a country is able to export products that are only exported by a few other countries worldwide and are therefore difficult to substitute, then this can also be understood as a knowledge advantage. It goes without saying that unique sources of raw materials, for example, are less meaningful in this sense – even if knowledge is required to extract them – but rather the range of manufactured products and services that a country is able to export is decisive. Hausmann et al.

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6 The chosen term ‘embedded’, which appears 19 times in this form alone in the cited publication, appears to be conceptually similar to Granovetter’s approach (1985), which is not mentioned by Hausmann et al. (2013), which obviously want to operationalise a very broad concept of knowledge.

7 Providing a commodity such as a can of bean soup requires knowledge from numerous and diverse areas, such as the processing and coating of aluminium or tinfoil, with a view to combining it with other materials such as epoxy resin or polyester, agricultural expertise in obtaining the right seeds at the right time for the right soil, the use of appropriate pesticides, and so on. An adequate list would probably go far beyond the scope of this whole essay and the recipe for the soup itself is probably the simplest of all. Goods such as a car engine or a production machine are, of course, much more complex.

therefore consider both “ubiquity” – i.e. the number of countries that can export a certain product (see Hausmann et al. 2013, p. 20) – and ‘diversity’, i.e. the number of goods that a country can produce and export (see *ibid.*).

In this way, two questions can be approached on the basis of the empirically well-recorded foreign trade integration of a country: on the one hand, where the relative position of a country is with regard to the economic utilisation of knowledge, and on the other hand, whether there is more or less development potential (see Hausmann et al. (2013). How have the Visegrad countries developed over the last twenty years?

#### **AN EMPIRICAL TRACE OF THE DEVELOPMENT OF THE VISEGRAD 4: DEVELOPMENT OF THE EXPORT STRUCTURE**

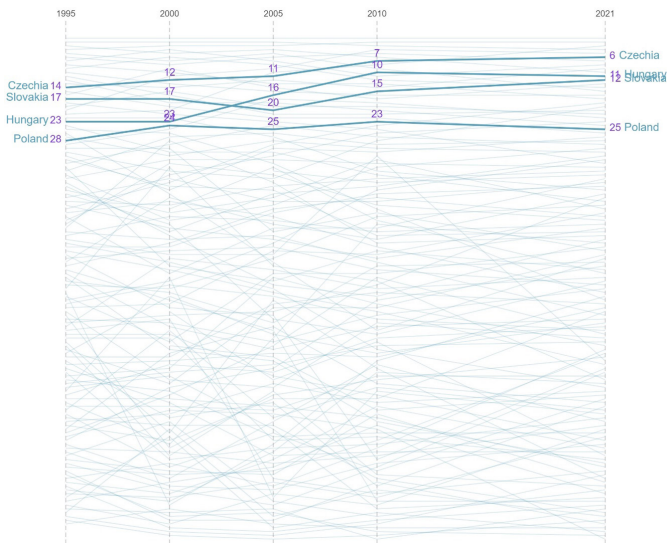
The following section sketches the development of the export economy of the Visegrad 4 countries since their accession to the European Union.<sup>8</sup> The ‘Harvard Growth Lab’ has been recording the data since 1995 and, in terms of their economic complexity, all four countries in the Visegrad Group have improved by 2021 (the last accessible end point of the measurement).

It should be noted that all of them were already in the top 30 of the corresponding complexity ranking in the mid-1990s. All V4 countries were able to improve their export structure and achieve a higher degree of economic differentiation. Looking at the exported goods in 2021 by product group, it is striking that the relative share of automotive production and the associated sectors is particularly high in Hungary, the Czech Republic and Slovakia. This share is lower in Poland. The respective development of differentiation in the export structure can be traced over time.

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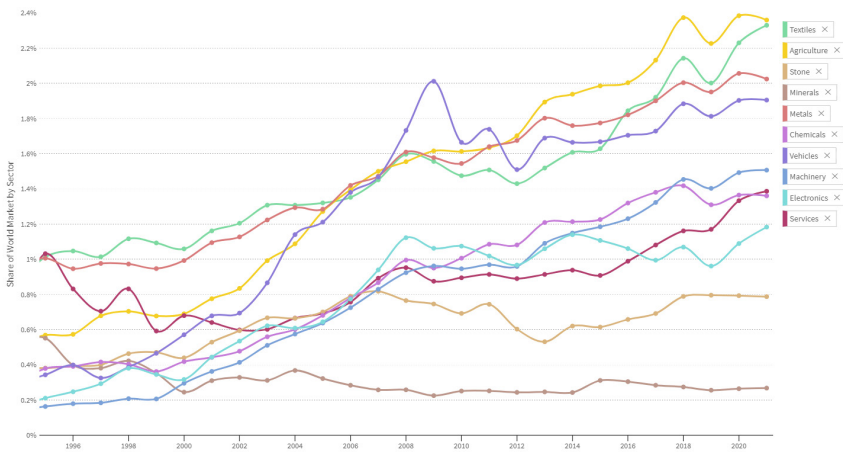
<sup>8</sup> *Nota bene*: this is a sketchy approximation that is permitted in view of the clarity of the trends recorded and the degree of plausibility of the theses derived in this context. The empirical data behind the data is publicly accessible via the Harvard Growth Lab, and it would go beyond the scope of this article to prepare it for these purposes, even in the form of an empirical appendix.

Fig. 1: The Visegrad 4 countries' position in the complexity ranking



Source: The Growth Lab at Harvard University

Fig. 2: Poland's global market share, 1995 – 2021

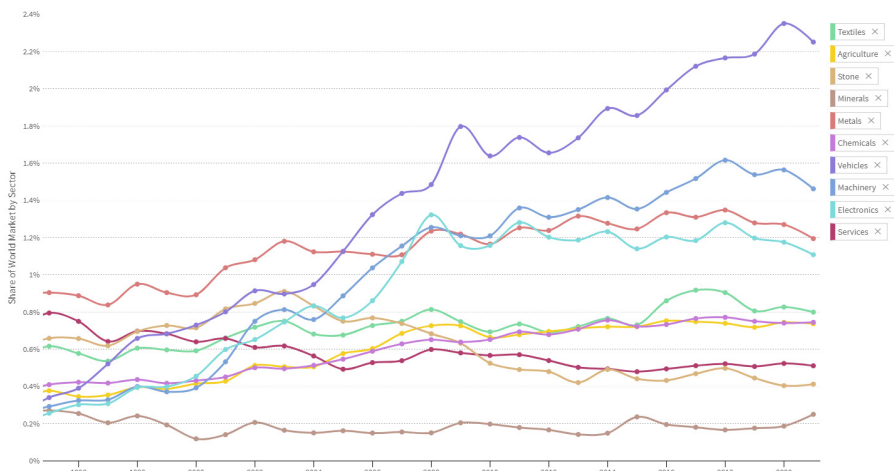


Source: The Growth Lab at Harvard University

As Figure 2 shows, since 1995, Poland has been able to increase its share of global markets across a relatively wide range of complex products, especially vehicles, metals and textiles – surprisingly, the share of exported agricultural goods has seen the greatest growth – but the share of machinery, electronics, chemicals and services has also increased.

In the Czech Republic, the growth in the share of machinery, electronics and metals in the global market was less dynamic over the same period, but was all the more striking in the case of vehicles, as Figure 3 shows.

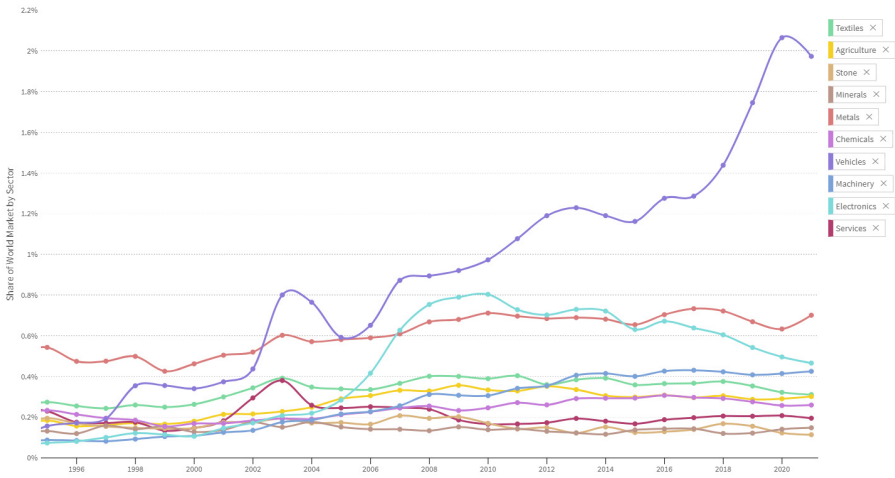
Fig. 3: The Czech Republic's global market share, 1995–2021



Source: *The Growth Lab at Harvard University*

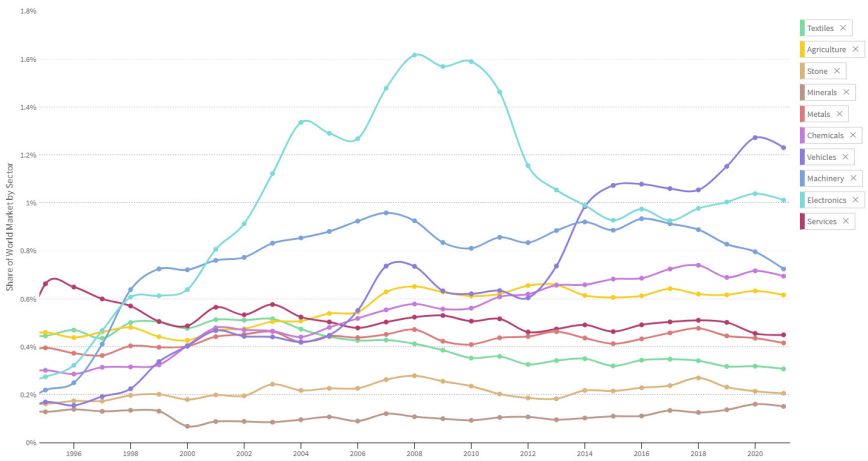
This difference is even more striking in the case of Slovakia: apart from the share of electronics, which grew dynamically after 2004 and then fell continuously after 2010, only the share of vehicles in the global market increased.

Fig. 4: Slovakia's global market share, 1995–2021



Source: The Growth Lab at Harvard University

Fig. 5: Hungary's global market share, 1995 – 2021



Source: The Growth Lab at Harvard University

In Hungary, as shown in Figure 5, the shares of global markets across the groups surveyed remained almost identical over the period, with the exception of the electronic goods group, which followed the upward and downward trend observed in Slovakia with somewhat greater dynamism. Here too, only the vehicles group was able to increase its share of world markets.

## SUCCESS OF FAILURE?

How should the observable structural development be interpreted? In terms of economic prosperity, it is encouraging that (1) economic complexity has increased overall in all four countries. However, it is also striking that the data collected by Harvard's Growth Lab would not lead anyone to conclude that accession to the European Union has taken place: There is (2) no visible impact of the accession of these countries with regard to the continuity of the recorded trends or the observable leaps in development. What is striking, however, is that – with the exception of Poland – a very clear path of (3) specialisation in automotive manufacturing can be observed.

In this respect, the development reveals more about the integration of the V4 countries into the existing production structures of the more developed West than about home-made growth in complexity. For there is no doubt that the Visegrad 4 countries have acquired vast “useful knowledge”, but this is more the result of a regional division of labour, a specialisation effect that was tackled by the key players on both sides of the Iron Curtain soon after the regime change. There is no doubt that the prospect of participating in the common economic space for the V4 was an element of the decision situation for Western investors from the outset. Furthermore, the present production structure of the Visegrad 4, which is geared towards exports, stems to a very considerable extent from foreign investors.<sup>9</sup> This means

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<sup>9</sup> This issue is so important for the situation of the young EU states that related problems are almost constantly dominating the political agenda. The shape and impact of foreign direct investment in Central and Eastern Europe have been thoroughly researched. More recent approaches include Makhavikova (2018) and Szent-Iványi (2017); see also Havlik et al. (2018) and Tang (2017).

that the proportion of economically relevant knowledge that can be documented on the basis of the economic complexity approach is primarily ‘imported’ via the investors’ organisations, i.e. *ab ovo* the result of the division of labour within organisations (such as car manufacturers), but not the result of ‘own’, regionally generated knowledge and diversity in the respective countries. This useful knowledge is undoubtedly located within the national borders, but it is only plausible that this has a different significance in terms of the potential of an economy than if it had come about without foreign direct investments.

It is therefore not surprising that while the complexity of the economy (i.e. the intensity of knowledge) of the economies analysed here is relatively high, although the empirically well-documented correlation between knowledge-intensive work practices and innovation is at best in the midfield in a European comparison (see Koster, 2022, in particular p. 150). Liu et al. (2013) have pointed out that sectors dominated by synthetic knowledge regionalise their global innovation networks, while industries based on analytical knowledge organise their innovations on a global scale. But regardless of the sector in question, the sectors that are decisive for the region under consideration were already developed parts of the global economy long before the V4 even joined the European Union.<sup>10</sup>

## CONCLUSIONS

The “knowledge economy” perspective, measured using the “economic complexity” approach, reveals that although the Visegrad 4 countries have developed very well during their first twenty years as members of the European Union, i.e. they utilise more “useful knowledge”, this has not helped them either in terms of their relative level of prosperity or in terms of their capacity to catch up with the more developed older member states. If one were to assume that the economies of

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<sup>10</sup> Sattler et al. (2023) have presented a lucid study on this problem, especially of innovation, which can actually only be criticised for only one shortcoming: Central Eastern Europe is not addressed.

the European Union were competing with each other for the top position in the utilisation of economically useful knowledge, then it would be a rat race. However, as the history of the transformation of Central and Eastern Europe shows, this is not the case at all. The empirically verifiable economically useful knowledge here is primarily an expression of the regional division of labour, which is therefore relatively less useful for the young member states and therefore also leads less to resilience than it is an expression of dependency in the network of international intra-industrial relationships.

The fact that the “knowledge economy” is basically a phenomenon of the division of labour, i.e. a phenomenon of differentiation, necessarily also means that knowledge and skills must be clustered (see, for example, Consiglio & Kurer, 2024). However, this also leads to the fact that this way of doing business polarises, i.e. *creates* disparities (see Borries et al. 2024, p. 288, who refer to Moretti 2012 and Feldman et al., 2020). Not to mention the fact that the V4 countries are all relatively small, i.e., given the role of economies of scale and agglomeration, they are not in a position to develop several poles within their own borders. No one will seriously deny that the citizens of the Visegrad 4 countries are better off materially today than they were twenty years ago and that this is also an effect of their integration into the European economy. Nevertheless, it seems that for structural reasons and the very way in which a knowledge economy works it will hardly be possible to catch up with the economically more developed neighbours, a problem that has been prominently presented in Hungary by Csath in particular (e.g. 2018).

From this perspective, the dazzling objectives – “economic and social progress which is balanced and sustainable (...), economic and social cohesion (...), economic, social and territorial cohesion”, see above – of those treaties, may be an expression of good intentions, but it does not have much in common with economic reality.

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**PART II:  
ECONOMIC POLICY AND GOVERNANCE  
IN THE VISEGRAD COUNTRIES**



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# ASSESSING FISCAL AND MONETARY POLICY COORDINATION THROUGH A NASH EQUILIBRIUM FRAMEWORK: THE CASE OF HUNGARY

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## INTRODUCTION

Fiscal policy, managing government spending and taxation to influence aggregate demand (Blinder, 1982), and monetary policy, with central banks controlling interest rates and money supply for price stability (Afonso et al., 2019), are essential macroeconomic tools. Though distinct, their interaction is critical: fiscal actions shape inflation and monetary settings (Bucacos, 2022), while monetary policy impacts fiscal efficacy. Without coordination, these policies can conflict, destabilizing economies, for instance, expansionary fiscal policy may necessitate offsetting monetary tightening (Di Bartolomeo & Di Gioacchino, 2008).

This study analyses these strategic dynamics using a Nash equilibrium framework, building on our prior work (Salimi et al., 2025), focusing on Hungary from 2013 to 2023. This period, marked by fiscal reforms and evolving monetary responses, saw significant policy friction and suboptimal outcomes (Di Bartolomeo & Di Gioacchino, 2008). The consistent presence of fiscal deficits during this period underscores the relevance of examining policy coordination. The Nash

approach is justified as independent policy optimization can create inefficiencies (Stawska et al., 2019). While acknowledging complexities like external shocks and potential informal coordination (Saulo et al., 2013), our assumption of independent decision-making facilitates identifying tensions and whether Hungarian fiscal imbalances and inflation trends led to suboptimal Nash outcomes (Bennett & Loayza, 2002).

We model strategic policy behaviour by estimating payoff functions from key macroeconomic data (interest rates, government spending, inflation, output gaps, public debt) and compare actual policies to Nash strategies to assess stability. The study's primary contribution is this empirical application to Hungary, offering updated, country-specific insights into the costs of uncoordinated policies. By quantifying deviations from optimal strategies, our research highlights tensions between fiscal pressures and monetary mandates, informing national policy debates and providing lessons for similar economies, despite the model's simplifications. Therefore, this study addresses the following research question: To what extent did the fiscal and monetary policy decisions in Hungary from 2013 to 2023 deviate from a non-cooperative Nash equilibrium, and what are the implications of these deviations for macroeconomic stability?

## **LITERATURE REVIEW**

### *THEORETICAL FRAMEWORK*

Game theory, particularly the Nash equilibrium, where no actor unilaterally benefits from changing strategy, is valuable for analysing fiscal-monetary interactions. This is relevant as fiscal authorities (managing growth, debt) and monetary authorities (targeting inflation, interest rates) often have distinct objectives, leading to non-cooperative scenarios (Saulo et al., 2013; Yu et al., 2022). The model involves strategies (e.g., spending levels, monetary targets) and payoff functions (e.g., output gap, debt, inflation). While assuming rational actors, it acknowledges real-world complexities like political constraints and imperfect information (Bennett & Loayza, 2002),

serving as a benchmark for identifying inefficiencies from independent decisions (Shannon et al., 2019).

### *FISCAL AND MONETARY POLICY INTERACTIONS*

Extensive literature explores fiscal-monetary coordination challenges. Seminal works (Sargent & Wallace, 1981; Leeper, 1991) highlighted risks of policy misalignment, especially if fiscal expansion undermines monetary discipline, often leading to suboptimal outcomes. Divergent goals, time horizons, institutional independence, political influences, information asymmetry, and policy lags complicate coordination (Yeboah, 2022). Empirical evidence, such as from Algeria (Chibi et al., 2021) and Hungary, shows that uncoordinated policies can threaten stability, underscoring the need for coordination, especially during crises. Credible institutions and formalized frameworks can reduce policy conflict (Chortareas & Mavrodimitrakis, 2017). This study applies the Nash model to Hungary to assess independent decision impacts.

### *EMPIRICAL STUDIES ON POLICY COORDINATION*

Empirical studies confirm that unsynchronized fiscal-monetary policies, particularly clashing fiscal imbalances and inflation goals, yield poor outcomes (Sargent & Wallace, 1981). European research indicates coordinated fiscal policies and strong institutional frameworks enhance stability and growth (Engwerda et al., 2019; Di Bartolomeo & Di Gioacchino, 2008). Empirical evidence, such as from Algeria (Chibi et al., 2021) and Hungary, shows that uncoordinated policies can threaten stability, underscoring the need for coordination, especially during crises. Recent crises (Echeverri et al., 2023) have tested these systems, emphasizing the need for agile, harmonized responses. Hungarian studies reveal instability from mismatched policies (Stawska et al., 2021; Yeboah, 2022), making it a compelling case for applying the Nash framework to understand these dynamics.

### *HISTORICAL PERSPECTIVE ON FISCAL AND MONETARY POLICIES*

Over 2013-2023, Hungary faced significant fiscal-monetary challenges. Fluctuating fiscal policy (Andor, 2009) often conflicted with monetary authorities' inflation management, leading to policy biases (Bennett & Loayza, 2002). The central bank navigated trade-offs between inflation control and economic support amid domestic needs and external pressures, resulting in volatile interest rates and prices (Di Bartolomeo & Di Gioacchino, 2008). While reforms aimed at EU alignment, structural limitations persisted. Stable leadership and fiscal discipline are crucial for coherence (Chortareas & Mavrodimitrakis, 2017). Hungary's experience illustrates how historical decisions and external shocks influence policy, a context that this Nash-based model helps clarify.

## **METHODOLOGY**

### *RESEARCH DESIGN*

This study employs a quantitative, game-theoretic approach using a Nash equilibrium model to examine fiscal-monetary policy interactions in Hungary (2013-2023). The model treats fiscal authorities (managing spending, deficits, debt for demand and sustainability) and monetary authorities (targeting inflation, interest rates, output gaps for stability) as independent actors pursuing distinct objectives, allowing analysis of non-cooperative decision outcomes (Banai et al., 2020; Di Bartolomeo & Di Gioacchino, 2008). The fiscal deficit, a key variable, is consistently recorded as a negative percentage of GDP throughout the study period. The core of the model rests on several key assumptions to maintain analytical tractability:

1. Rational behaviour: Both fiscal and monetary authorities are assumed to be rational actors aiming to optimize their respective payoff functions.
2. Non-cooperation: The authorities act independently without formal coordination, consistent with a non-cooperative game framework.

3. **Linearity:** The relationships within the model, including the reaction functions, are assumed to be linear for simplicity.
4. **Simplified objectives:** The model focuses on a limited set of key macroeconomic objectives (e.g., output gap, public debt, inflation) to define the payoff functions.
5. **Exclusion of shocks:** The model does not explicitly incorporate the effects of major external or domestic shocks (e.g., the COVID-19 pandemic, the war in Ukraine), focusing instead on the underlying strategic interaction under normal conditions.

Core Hungarian macroeconomic indicators (policy interest rates, government spending, inflation, output gaps, fiscal deficits, public debt) from 2013-2023 are used, sourced from the MNB, national statistics, Eurostat, and the IMF. This quantitative approach, combining econometrics and game-theoretic simulations, offers insights into policy coordination challenges despite the noted simplifications.

### ANALYTICAL FRAMEWORK

A dynamic Nash equilibrium model captures strategic interactions. Fiscal (F) and monetary (M) authorities choose policy strategies ( $S_F, S_M$ ) to optimize payoff functions ( $U_F, U_M$ ). A Nash equilibrium ( $S_F^*, S_M^*$ ) exists if no player unilaterally benefits from deviating:

$$U_F(s_F^*, s_M^*) \geq U_F(s_F, s_M^*) \quad \forall s_F \quad (1)$$

$$U_M(s_F^*, s_M^*) \geq U_M(s_F^*, s_M) \quad \forall s_M \quad (2)$$

Payoff functions simplify complex objectives. ( $U_F$ ) depends on the output gap ( $y$ ) and public debt ( $d$ ); ( $U_M$ ) on inflation deviation ( $\pi - \pi^*$ ) and the interest rate ( $i$ ) (Saulo et al., 2013):

$$U_F(s_F, s_M) = f(y, d) - C_F(s_F) \quad (3)$$

$$U_M(s_F, s_M) = g(\pi, i) - C_M(s_M) \quad (4)$$

where ( $C_F$ ) and ( $C_M$ ) are policy implementation costs, often modeled as quadratic functions (Saulo et al., 2013). Preferences are implicitly defined via estimated reaction functions. Best response (BR) functions identify optimal strategies given the other's choice:

$$BR_F(s_M) = \{s_F \mid U_F(s_F, s_M) \geq U_F(s'_F, s_M), \forall s'_F\} \quad (5)$$

$$BR_M(s_F) = \{s_M \mid U_M(s_F, s_M) \geq U_M(s_F, s'_M), \forall s'_M\} \quad (6)$$

Their intersection yields the Nash equilibrium (Blueschke et al., 2013). Dynamics are incorporated by assuming current outcomes depend on past outcomes and policies:

$$y_{(t+1)} = \alpha y_t + \beta_F s_{(F,t)} + \beta_M s_{(M,t)} + \epsilon_t \quad (7)$$

(Smets & Wouters, 2003). This study uses empirically estimated relationships, assuming standard transmission mechanisms (Reiss & Wolak, 2007) without full structural modeling, relying on reduced-form estimations (Blueschke et al., 2013).

#### ESTIMATION STRATEGY

Reaction functions are estimated to approximate the behavior of fiscal and monetary authorities and to derive best response curves. The fiscal stance, measured by the fiscal deficit as a percentage of GDP ( $FD_t$ ), is modeled as a function of the output gap ( $y_t$ ) and public debt ( $d_t$ ), % of GDP:

$$FD_t = c_F + \alpha y_t + \beta d_t + \varepsilon_{(F,t)} \quad (8)$$

where ( $\alpha < 0$ ) implies counter-cyclical fiscal policy, and ( $\beta < 0$ ) indicates debt consolidation behavior (Asso et al., 2007); if ( $FD_t$ ) is negative for a deficit, ( $\alpha > 0$ ) would imply pro-cyclical fiscal policy (deficit shrinks or becomes less negative with a positive output gap), and ( $\beta > 0$ ) would indicate debt consolidation behavior (deficit shrinks or becomes less negative as debt increases).

Monetary policy, represented by the benchmark interest rate ( $i_t$ ), follows a Taylor-like rule, responding to the inflation gap ( $\pi_t - \pi^*$ ), with the inflation target ( $\pi^* = 3\%$ ), and the output gap:

$$i_t = c_M + \gamma(\pi_t - \pi^*) + \delta y_t + \varepsilon_{(M,t)} \quad (9)$$

where ( $\gamma > 1$ ) satisfies the Taylor principle, and ( $\delta > 0$ ) supports output stabilization (Asso et al., 2007).

Parameters are estimated using Ordinary Least Squares (OLS) on annual data from 2013 to 2023, following Dismuke & Lindrooth (2006). Variable selection is guided by policy objectives and standard functional forms (Chortareas & Mavrodimitrakis, 2017). These estimated relationships are used to compute the Nash equilibrium.

## RESULTS AND DISCUSSION

This section presents empirical findings on fiscal-monetary policy interaction in Hungary (2013-2023) using the Nash equilibrium framework, assessing coordination and macroeconomic impacts.

### *DESCRIPTIVE ANALYSIS*

Hungarian fiscal and monetary variables fluctuated significantly (Table 1). Average interest rates (approx. 3.46%) fell to 0.6% (2016–2021) before rising to 13% (2022–2023) amid surging inflation (peaking at 17.1% in 2023). Inflation was volatile, with deflation (2014–2015) and a dramatic rise from 2021, linked to events like the COVID-19 pandemic and the Ukraine war. The fiscal deficit as a percentage of GDP averaged  $-3.95\%$ , with values ranging from a minimum of  $-7.6\%$  in 2020 to a maximum (smallest deficit) of  $-1.8\%$  in 2016. This indicates a persistent fiscal deficit throughout the period.

Correlations suggest increased government spending was associated with higher inflation (0.94) and larger absolute deficits. Interest rates correlated positively with inflation (0.92). Higher relative government spending and debt levels were associated with lower output gaps ( $-0.83$  and  $-0.88$ , respectively), possibly due to crowding out or inefficiencies.

Table 1. Variable statistical summary

<b>Selected variables</b>	<b>Mean</b>	<b>Std</b>	<b>Min</b>	<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>Max</b>
Interest Rates	3.46	4.8	0.6	0.9	0.9	2.95	13
Government Spending (Billion HUF)	9417.27	3048.42	5985	7056	8540	10941	15386
Government Spending (Percent GDP)	48.44	1.92	45.8	46.65	48.7	50.05	51
Inflation Rate	4.58	5.82	-0.2	1.05	2.9	4.2	17.1
Output Gap	-0.076	2.57	-4.85	-1.21	0.0	1.35	3.5
Fiscal Deficit (Percent GDP)	-3.95	2.40	-7.60	-6.45	-2.6	-2.05	-1.8
Fiscal Deficit (Billion HUF)	2119.82	1546.62	900	1000	1100	3500	5018
Public Debt (Percent GDP)	73.8	3.98	65	72.7	74.6	76.35	78.7
Public Debt (Billion HUF)	29057.64	9196.2	23000	24250	25500	30500	55134

### ESTIMATION OF MODEL PARAMETERS

OLS estimation of reaction functions (2013–2023 annual data, Table 2) revealed that for the fiscal authority, the output gap coefficient ( $\alpha=0.9396$ ) suggested pro-cyclical tendencies, while public debt ( $\beta=0.2811$ ) aligned with consolidation behaviour. Both were statistically insignificant (p-values 0.120, 0.444), and the R-squared value (0.405) indicated fiscal outcomes were influenced by factors

beyond the model. For the monetary authority, the inflation gap coefficient ( $\gamma=0.7548$ ) was positive, substantial, and highly significant ( $p<0.001$ ), indicating a strong response to inflation deviations from the 3% target, though  $\gamma<1$  suggests the Taylor principle wasn't strictly followed. The output gap coefficient ( $\delta=-0.1034$ ) was small and insignificant ( $p=0.702$ ), implying inflation control was prioritized. The high R-squared value (0.844) showed good model fit. These findings suggest a relatively systematic, inflation-focused monetary policy, while fiscal behaviour, based on the estimated reaction function, was less predictably tied to the output gap and public debt levels in a statistically significant manner, introducing uncertainty into the Nash modelling. The low statistical significance of fiscal parameters remains a caveat.

*Table 2. Estimated parameters of fiscal and monetary authorities' payoff functions*

<b>Parameter</b>	<b>Estimate</b>	<b>Std. Error</b>	<b>t-statistic</b>	<b>P-value</b>
<b>Fiscal Authority Regression</b>				
Constant	-24.6340	25.750	-0.957	0.367
(Output Gap)	0.9396	0.540	1.739	0.120
(Public Debt)	0.2811	0.349	0.805	0.444
<b>Monetary Authority Regression</b>				
Constant	2.2573	0.665	3.392	0.009
(Inflation Gap)	0.7548	0.115	6.544	0.000
(Output Gap)	-0.1034	0.261	-0.396	0.702

## DERIVATION AND SIMULATION OF BEST RESPONSE FUNCTIONS

The fiscal authority's best response function:

$$FD_t = \frac{41.0969 - 1.6451(-0.0833 + 0.1050 \cdot i_t) - 0.5438 \cdot \text{Public Debt}_t}{1 + 1.6451 \cdot 0.3294} \quad (10)$$

The monetary authority's best response function:

$$i_t = \frac{2.2573 + 0.7548(-2.0326 + 0.4126 \cdot FD_t) - 0.1034(-0.0833 - 0.3294 \cdot FD_t)}{1 - 0.7548 \cdot 0.9159 + 0.1034 \cdot 0.1050} \quad (11)$$

Table 3. Fiscal and monetary authorities' best response strategies

Year	Actual Fiscal Deficit (% GDP)	Fiscal Best Response (% GDP)	Actual Interest Rate (%)	Monetary Best Response (%)
2013	-2.6	-2.5527	3.80	0.6342
2014	-2.8	-2.2343	2.10	1.0513
2015	-2.0	-1.9741	1.35	-0.6172
2016	-1.8	-1.6670	0.90	-1.0343
2017	-2.5	-1.0337	0.90	0.4256
2018	-2.1	-0.2542	0.90	-0.4086
2019	-2.0	0.6714	0.90	-0.6172
2020	-7.6	-2.6396	0.60	11.0624
2021	-7.2	-2.0307	0.60	10.2282
2022	-6.2	-2.5251	13.00	8.1425
2023	-6.7	-2.4277	13.00	9.1853

Linearity simplifies analysis but is a limitation, as real-world non-linearities could alter dynamics (Ferdinandusse et al., 2023). The simulation of best responses (2013–2023, Table 3) showed that actual fiscal deficits were generally more expansionary than optimal, e.g., in 2020, the actual deficit was -7.6% vs. a best response of -2.64%. For monetary policy, best response rates during 2020–2021 were much higher (11.06%, 10.23%) than actual rates (0.6%), suggesting looser-than-optimal policy. In 2022–2023, actual rates (13%)

exceeded model-optimal levels (8.14%, 9.19%), indicating possible over-tightening. Gaps between actual and optimal responses point to weak coordination, with pandemic-era policy likely contributing to inflation.

#### *COMPUTATION OF NASH EQUILIBRIUM STRATEGIES*

Nash equilibrium strategies, found by jointly solving best response functions annually, varied significantly (Table 4). 2013–2015: modest fiscal deficits (e.g., -2.21% in 2013), low interest rates. 2016–2019: gradually smaller fiscal deficits, reaching a small surplus (1.43% in 2019); equilibrium interest rates were negative, as low as -7.76% in 2019. 2020–2021 (Pandemic): moderate deficits (e.g., -2.65% in 2020), low rates (0.74%). 2022–2023: continued negative rates despite rising inflation. Some strategies (e.g., -7.76% in 2019) appear implausible, reflecting model assumptions and highlighting gaps between theoretical optima and real-world policy. A stable equilibrium confirms policy interdependence, though outcomes may be suboptimal without coordination.

*Table 4. Nash equilibrium strategies and iterations (2013–2023)*

<b>Year</b>	<b>Nash Fiscal Strategy (% GDP)</b>	<b>Nash Monetary Strategy (%)</b>	<b>Iterations</b>
2013	-2.2057	-0.1882	10
2014	-1.9973	-0.6227	10
2015	-1.7593	-1.1193	10
2016	-1.4319	-1.8020	10
2017	-0.6581	-3.4158	10
2018	0.2942	-5.4021	11
2019	1.4251	-7.7607	11
2020	-2.6521	0.7428	8
2021	-1.9081	-0.8089	10
2022	-1.1938	-2.2986	11
2023	-1.0748	-2.5469	11

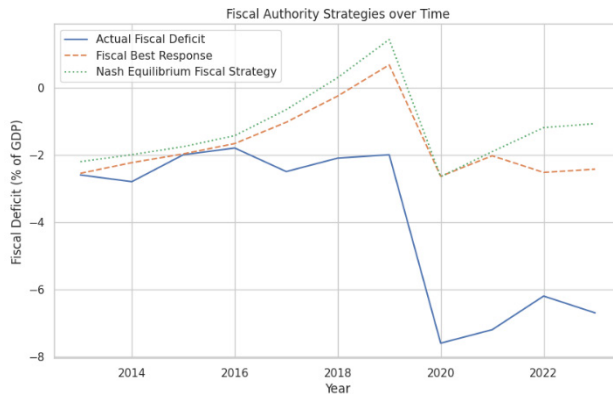
### COMPARISON WITH ACTUAL POLICY DECISIONS AND DISCUSSION OF FINDINGS

Comparing actual policies to Nash equilibrium strategies revealed persistent deviations and coordination challenges. Fiscal deficits were consistently larger than Nash prescriptions across 2013–2023. For instance, in 2013 the actual deficit was  $-2.6\%$  vs. Nash  $-2.21\%$ ; in 2017,  $-2.5\%$  vs.  $-0.66\%$ ; in 2020, during the pandemic,  $-7.6\%$  vs.  $-2.65\%$ ; and in 2023,  $-6.7\%$  vs.  $-1.07\%$ . Nash suggested surpluses only in 2018 ( $0.29\%$ ) and 2019 ( $1.43\%$ ), while actual deficits persisted ( $-2.1\%$  and  $-2.0\%$ ), suggesting a consistently more expansionary fiscal stance than optimal.

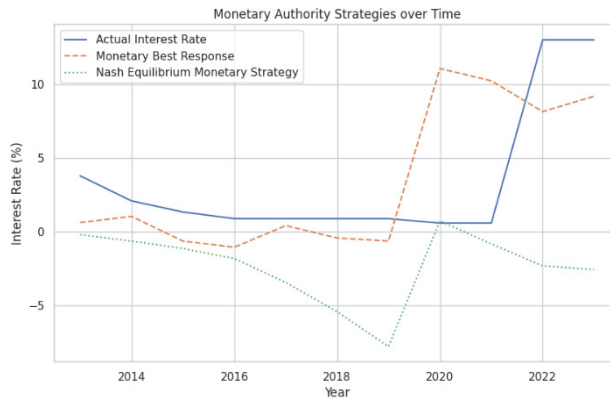
On the monetary side, Nash strategies often called for negative interest rates, starkly contrasting actual policy. In 2013, the actual rate was  $3.80\%$  vs. Nash  $-0.19\%$ ; in 2019,  $0.90\%$  vs.  $-7.76\%$ ; and in 2022–2023, actual rates reached  $13\%$ , while Nash values were  $-2.30\%$  and  $-2.55\%$ . Only in 2020 did actual and Nash rates align ( $0.60\%$  vs.  $0.74\%$ ). These discrepancies reflect a pattern where actual monetary policy was far tighter than what Nash solutions suggested, potentially as a counterweight to expansionary fiscal policy.

Figure 1, presented below, visually demonstrates the significant and persistent gap between actual policies and the calculated Nash equilibrium strategies over the entire study period.

Figure 1: Fiscal authority strategies over time



*Monetary authority strategies over time*



Such divergences point to deep misalignment and limited strategic coordination (Table 5). It is crucial to interpret these Nash equilibrium outcomes, particularly the deeply negative interest rates (e.g., -7.76% in 2019), as artifacts of the model’s linear structure and estimated parameters, rather than as practical or feasible policy prescriptions. They serve as useful benchmarks to quantify the degree of policy divergence. Furthermore, the analysis is based on point estimates from the regression models. The statistical insignificance of the parameters in the fiscal reaction function, in particular, introduces considerable uncertainty around the computed fiscal best-response and Nash equilibrium strategies. A formal sensitivity analysis or the computation of confidence intervals for the equilibrium strategies was beyond the scope of this study but represents an important caveat to the findings. This highlights the need for improved coordination, possibly through institutionalized dialogue, joint forecasting, or stronger independent fiscal frameworks to align policy actions and enhance macroeconomic stability.

*Table 5. Comparison of actual policies and Nash equilibrium strategies (2013–2023)*

Year	Actual Fiscal Deficit (% GDP)	Nash Fiscal Strategy (% GDP)	Difference	Actual Interest Rate (%)	Nash Monetary Strategy (%)	Difference
2013	-2.6	-2.2057	-0.3943	3.80	-0.1882	3.9882
2014	-2.8	-1.9973	-0.8027	2.10	-0.6227	2.7227
2015	-2.0	-1.7593	-0.2407	1.35	-1.1193	2.4693
2016	-1.8	-1.4319	-0.3681	0.90	-1.8020	2.7020
2017	-2.5	-0.6581	-1.8419	0.90	-3.4158	4.3158
2018	-2.1	0.2942	-2.3942	0.90	-5.4021	6.3021
2019	-2.0	1.4251	-3.4251	0.90	-7.7607	8.6607
2020	-7.6	-2.6521	-4.9479	0.60	0.7428	-0.1428
2021	-7.2	-1.9081	-5.2919	0.60	-0.8089	1.4089
2022	-6.2	-1.1938	-5.0062	13.00	-2.2986	15.2986
2023	-6.7	-1.0748	-5.6252	13.00	-2.5469	15.5469

## CONCLUSIONS

This study analysed Hungary's fiscal-monetary interactions from 2013 to 2023 using a Nash equilibrium framework to identify potential inefficiencies arising from uncoordinated policymaking. By estimating reaction functions for fiscal and monetary authorities, we derived best response functions and numerically computed annual Nash equilibrium strategies, which were then compared to actual policy decisions.

Our findings revealed marked and persistent divergences between actual policies and the computed Nash strategies. Specifically: (i) Actual fiscal policy was consistently more expansionary than the Nash equilibrium suggested. (ii) Actual monetary policy was significantly tighter, with higher interest rates than the often-negative rates produced by the model. (iii) The statistical estimation underpinning

these results was robust for the monetary authority but weak for the fiscal authority, whose behaviour was not significantly explained by the output gap and public debt in our model.

### *POLICY IMPLICATIONS*

The demonstrated misalignment between actual and model-based optimal policies suggests that improved coordination could lead to better macroeconomic outcomes. Based on our findings, we propose the following implications for policymakers:

**Strengthen institutional dialogue:** Formal mechanisms for dialogue and information sharing between fiscal and monetary authorities could help align strategic objectives and prevent policies from working at cross purposes.

**Implement joint forecasting:** The use of shared macroeconomic forecasts could provide a common baseline for policy decisions, reducing discrepancies that arise from differing assumptions about the economic outlook.

**Consider fiscal frameworks:** Adopting a more robust and independent fiscal framework could help anchor fiscal policy, making it more predictable and less susceptible to pro-cyclical tendencies, thereby easing the burden on monetary policy.

### *LIMITATIONS*

The conclusions should be interpreted with caution due to several limitations. The results are contingent on the model's core assumptions, including strict non-cooperation, linearity, and the omission of major economic shocks and political factors. The statistical weakness in the estimated fiscal reaction function introduces significant uncertainty into the fiscal side of the equilibrium analysis. Finally, the counterintuitive nature of some Nash equilibrium values (especially the deeply negative interest rates) underscores that they are model-derived benchmarks, not prescriptive policy targets.

### *FUTURE RESEARCH*

Building on this analysis, several concrete paths for future research could yield deeper insights:

Extend the model to a stochastic setting: Incorporating stochastic shocks into a Dynamic Stochastic General Equilibrium (DSGE) framework would allow for an analysis of how policy coordination performs in the face of uncertainty.

Explore non-linearities: Future studies could investigate non-linear policy responses, which may better capture behaviour during periods of high inflation or deep recession.

Conduct comparative analysis: Applying this game-theoretic framework to other Central and Eastern European (CEE) countries would allow for a comparative analysis to determine if the observed coordination challenges are unique to Hungary or common across the region.

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## **BRIDGING THE GAP: GENDER QUOTA APPLICATION IN V4 COUNTRIES**

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### **EUROPEAN COUNTRIES WITH GENDER QUOTA REGULATIONS BEFORE THE EU DIRECTIVE**

In certain countries there is no need for legislation, given the attitude of the people is enough to increase the proportion of women in leadership positions, while in some regions without the force of law reaching noteworthy progress is impossible in term of female leadership support. Most of the countries that have passed the most stringent laws and quotas to promote women leaders are in Europe.

European countries have introduced quota regulations in multiple waves. France and Belgium were the first to introduce quota laws in 2011. Following their lead, Italy introduced a similar measure in August 2012, Germany in 2015, Austria and Portugal in 2018 and Greece in 2021 (EWOB, 2021). In the Netherlands a gender quota law was in place between 2013 and 2016, however, it did not prove to be effective, so a new, stricter law had to be enacted in 2022 (Senden & Kruisinga, 2017.). This also shows that after lifting quota laws, without supportive attitudes, the development goals are not achievable. The target rates gradually increased over the years in several countries, reaching 25-30% set rates. The range of companies affected varies from country to country, but in general the listed and state-owned companies are subject to quota laws, particularly the supervisory boards. In many cases, the number of employees and/or the size of the annual revenue also influences which companies must comply with the provision (EWOB, 2021). Companies affected by the quota have reporting obligations, with compliance periods varying from country to country, usually between 3-8 years. If they fail to meet the target set by law, they face various sanctions like withdrawal of attendance fees for the

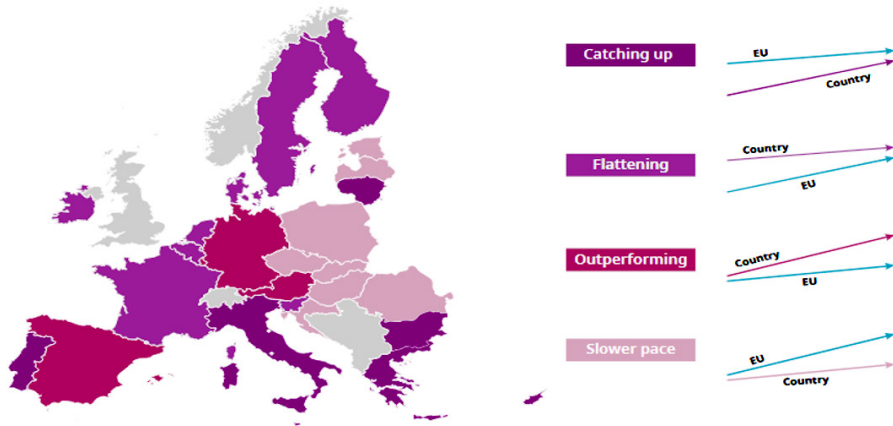
leadership positions, the disqualification of the supervisory board, the payment of fines or restrictions on the board election process (Németh, 2022).

Regarding the past gender quota law application, we can notice a divide between the West and the East. This overlaps with the countries' willingness to comply with the European Gender Equality Goals. Although the European Institute of Gender Equality reported an upward trend in attitudes towards the union's objective, the regional performance in terms of convergence with them and efficiency of supporting measures lag in the East. Classified as slower pace countries- "Czechia, Estonia, Croatia, Latvia, Hungary, Poland, Romania and Slovakia have consistently lower-than-average Gender Equality Index scores and are progressing slowly, "catching up", „flattening" or "outperforming" categories, which aim to represent the member states that have already reached or exceeded the weighed EU average score (EIGE, 2024).

### **EU GENDER QUOTA-TREND IN THE WEST, DISASTER IN THE EAST**

The legislative proposal to introduce a gender quota was dismissed during Council meetings. No wonder that the Eastern and Central European member states, Poland, Estonia, Romania, and the Czech Republic have objected to the introduction of a gender quota law. Representatives of these countries questioned the legitimacy of the purposeful approach, fearing that gender equality is not going to receive enough respect. Another problem with the introduction of the general quota directive is that the participation rate of women in upper management level proved to be the lowest in these countries. Member States such as the Netherlands, Sweden, France, and Germany have also expressed their concerns regarding the necessity for an EU-wide quota system, arguing that gender inequality should be addressed on national level. Their own legislation and the results achieved can serve as an example to other Member States (Veldman, 2023).

*Patterns of convergence in the Gender Equality Index by member state  
(2021-2022)*



Source: EIGE, 2024

The EU Council approved the gender quota bill on 22 October 2022, and one month later the Parliament adopted it as directive. Under the new directive, listed companies must aim to have at least 40% of non-executive director positions held by members of the under-represented sex by 2026. Member states may also decide to apply the quota to both non-executive and executive directors. In these countries, the target is that members of the “minority” gender should fill 33% of all senior managerial positions. The gender quota law of the Member State affects companies domiciled within the country. In case of non-compliance, the companies will have to face penalties in the forms of selection procedure modifications, fines, or the possibility for a court to annul decisions concerning the selection of directors or to declare it invalid. The deadline for the transposition by Member States was 28<sup>th</sup> December 2024, and companies must meet the targets by 30 June 2026 (Council of the European Union, 2024).

Of course, the practical application of the Directive may vary from one Member State to another, as the gender quota measure is not a regulation. Member States that have successfully applied a quota

system or have supporting legislation in place can keep those if they continue to work effectively. The countries must designate one or more bodies for the promotion, analysis, monitoring, and support of gender balance on boards. The legislation also includes a provision requiring companies to report annually on the gender representation on their boards and on the measures, they are taking to achieve the 33% and 40% targets. Small and medium-sized enterprises with fewer than 250 employees are exempt from the legislation (Council of the European Union, 2024).

As of end of January 2025, only nine Member States had fully transposed the Directive: Spain, Croatia, Italy, Lithuania, Malta, Slovenia, Slovakia, Finland and Sweden (EIGE, 2025a). European Commission launched infringement proceedings against seventeen member states and tried to push for more action to create a positive environment for change. Bulgaria, Denmark, Ireland, France, Poland, and Portugal have only partially transposed the directive, while another 11 countries—including Hungary and Czechia—have yet to notify the relevant measures (Soler, 2025).

## **GENDER EQUALITY POLITICS IN V4 COUNTRIES BEFORE THE EU DIRECTIVE**

Politics have a huge influence on the attitude of the people; how aware they are about gender inequalities in their home countries and whether they support the gender equality measures. Political activities also determine the willingness of the companies to follow the regulatory measurements induced by the European Union.

In Poland, between 2015 and 2023, the government made strong anti-gender equality statements, leading the public opinion towards a passive attitude. They argued that gender ideology was a threat to Polish society and Catholic values. In 2017, following the ban on the abortion law, a series of protests were labelled as anti-government women's movements, which created further inequalities in the country (Krizsán & Roggeband, 2018). The case of Poland is interesting because despite the negative attitude there has been still a soft 30%

quota in practice, making it the only V4 member state that had some kind of gender quota for listed companies (Allen & Overy, 2022). In 2023, a major change was the creation of the position of Minister for Gender Equality, which is currently held by Katarzyna Kotula, with the aim of improving gender inequalities (Szymanski, 2024).

Hungary also supports conservative mindset and focuses on the protection of family values and gives greater attention to it. To ensure it the Hungarian government abolished or reformed the previously existing measures at institutional level. This may mean re-shaping governing authorities, intergovernmental and other partnerships, networks of private and public organizations. The easiest way to do this is to withdraw financial support from gender equality organizations, as they will soon cease to operate due to lack of capital. In the case of Hungary, this is what happened from 2010 onwards. The current government dismantled most of the gender equality structures that had been set up by the earlier government. The gender equality unit in the ministry disbanded.

Later it reformed with two people under the Deputy State Secretary for Family and Population Policy. The Gender Equality Council has not been called together since 2010. After the elections even the implementation of the national gender equality strategy stalled, and no new measures have been introduced. In 2018, the Gender Studies Master's programs were also banned in the country (Fodor, 2022). So far, the Hungarian parliament has not accepted the adoption of the EU level gender equality directive or took steps to introduce national level quota law.

In the Czech Republic, the representation of women in the management of state-owned companies has also been exceptionally low, however there is a nomination act in force. The Nomination Act legislatively enshrines the nomination process in the management and control bodies of companies with state ownership and state-owned enterprises. Unlike previous practice, these companies are obligated to hold tenders when filling positions in the company's governing bodies. The selection procedures are thus completely transparent, with emphasis on meeting the legal and professional requirements for the position. After 2020 the government approved strategy brought

changes to the nomination process. One of the approved measures is to support the adoption and implementation of a diversity policy. Since that, the issue of gender equality is under monitoring with a focus on the application of the diversity policy. Furthermore, the companies are expected to describe in the annual reports how their diversity policy is implemented (Office of the Government of the Czech Republic, 2021). The Czech parliament have chosen to implement the new EU gender equality directive only in the minimum necessary way. Consequently, it only applies to Czech companies that have over 250 employees and a revenue of over fifty million euros. The attitude towards quotas is negative in the country, because people do not understand why quota measures should be in place and how they could help (Stelzerová, 2024).

Lately Slovakia focuses on the realization of The National Strategy for Equality between Women and Men and Equal Opportunities, this plan determines the possible development path until 2027. Coordinating Slovakia's gender equality policy is the responsibility of the Department for Gender Equality and Equal Opportunities, which has been part of the Ministry of Labor, Social Affairs and Family since 2012. This body is responsible for the publication of the annual Gender Equality Report. Although the country has a governmental gender equality body, the accountability of this department is questionable. Moreover, the national action plans do not have specific targets and budget. Despite this, the governmental gender mainstreaming structures and consultation processes proved to be efficient, given all ministries participate in the interdepartmental coordination structure to coordinate the promotion of gender equality. They consult with civil society primarily through the Gender Equality Committee (EIGE, 2025b). Implementation of the directive is problematic, because in Slovakia members of boards of supervisors are elected by shareholders and the state can hardly influence the process via a law (Fuska et al., 2025).

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## **SUPPORTING MEASURES OF LISTED COMPANIES IN V4 COUNTRIES IN 2024**

The diversity policy lays down the objectives and criteria for diversity, in areas such as gender, education, expert knowledge, age and professional experience; it also specifies the deadline for, and the method of, monitoring the execution of these objectives. This overview about the gender equality supporting measures of listed companies, located in Poland, Slovakia, Czech Republic, and Hungary, was written based on, in 2024 published, annual non-financial or sustainability reports of twenty companies. These companies belong to the top ten companies listed on the stock exchanges of these countries and majority of them are subject to the 2022 introduced gender equality supporting directive. Five companies from each country were selected for analysis.

In Poland less than 70 of the WSE listed companies are affected by the gender quota. Not only the oil industry corporation Orlen, the clothing manufacturer LPP, the financial institution PZU and KO Bank Polski, but also the retail company Dino, are going to be among these. In case of the examined Polish companies three companies out of five have more than 30% female participation on board. The Orlen oil company and LPP turned out to be the best performing firms with 40%, followed by PZU (33%), and KO Bank Polski (25%). Although WSE listed companies should have diversity policy progress included in their annual reports, Dino Polska has no female board member and no official diversity policy. The rest of the companies met this requirement. All the companies are committed to transparent and fair remuneration rules; they monitor the gender pay gap regularly. LLP performs outstandingly on this term, almost closing the 2% gap they have left. Orlen, PZU and LLP have work-life balance programs, LLP also have a training course aimed at destructing unconscious bias. Three out of the four company reports lack future goals. The career development opportunities and gender equality supporting measures are not well communicated. Even if they apply measures they are not shared with the public. In the case of PZU and LLP leadership academies were introduced to support the upskilling of the employees

with leadership potential (Orlen; LPP; PZU; KO Bank Polski; Dino, 2024).

The number of the listed companies on the Bratislava Stock Exchange is eight in total, due to the small company sizes, not even half of the firms are affected by the gender quota regulation. Biotika (66%) and Tatra Banka (28,5%) have the highest female participation rate in the upper management. Although all the five firms examined should have diversity policy, only Tatra Bank outlines it in their report, though Tatra Bank shared no information about the participation rates, objectives or applied measures. Another company, Tatra Mountain Resorts, strives to enable equal employment opportunity, and employs 56% men and 44% women; however, it has not yet prepared and implemented a diversity policy for its statutory bodies and top management, thus such policy is not published on the company website either. Vipo A.S., Prvá strategická and Biotika do not appear to have a publicly available, dedicated sustainability report in the traditional sense (Tatra Banka; 2024; Tatra Mountain Resorts; 2024; Vipo; 2024; Biotika; 2024; Prvá, 2024).

Czech companies, listed on the Prague Stock Exchange pay more attention to their sustainability reporting. Apart from the utility company CEZ, Komerční banka (KB), Philip Morris, Kofola, even the firearm producer Colt is subject to the gender quota law application. These are also the firms that were examined in this study. Komerční banka followed the stated requirement for the inclusion of 40% of the under-represented gender. Currently four of the nine supervisory board members are women, thus they reached their target rate. In the nomination processes of KB preference will be given to the under-represented gender in the case of candidates having equal profiles. The bank has been a gold signatory to European Charter Diversity – a project under the auspices of the European Commission since 2010. They also have a project, named #FinWomen, which aims to activate and support women in the financial services community, particularly in terms of career growth and development. Philip Morris also met the set criteria with 36% female participation rate on the board of directors. Colt (16%), CEZ (11%) and Kofola (0%) will have to take measures to increase the participation rate of women board members.

Although Kofola does not have any female upper managers, their projects initiated by Kofowomen in PR aims for supporting women in leadership positions and enhance their personal growth. CEZ also has proactive measures in practice. From 2023 they introduced recruitment campaign aiming to bring women into energy sector, their objective is to achieve 30% share of women in management, at the same time they have development program for aspiring female employees. All the companies mentioned have diversity policies and detailed reports annually published. They are committed to equal remuneration and monitor the gender pay gap, Philip Morris even managed to be certified globally as equal-salary workplace. The progress made in connection with equal pay can be tracked through the sustainability reports, however the objectives, measures and participation rates for management positions require more detailed reporting (CEZ; Colt; Kofola; Philip Morris; Komerční banka; 2024).

From Hungarian companies OTP Bank, MOL, Richter Gedeon, Zwack Unicum and Waberer's International were examined. Richter Gedeon proved to be the best performing company in terms of female participation rate on boards with above 30%. Reaching the 30% target rate was among the company's objectives they accepted in their diversity policy in 2018. In the recruitment and nomination processes the company pays special attention to the inclusion of people from the underrepresented gender. In case of Zwack Unicum the female participation rate on the board of directors is around 18% (Zwack Unicum Nyrt. 2024b). Despite not having an official diversity policy, the firm has proceedings against gender discrimination and provides upskilling programs for employees returning from parental leave (Zwack Unicum Nyrt. 2024a.).

The female participation rates at OTP Bank and MOL Group are around 9% on the supervisory boards. According to the currently adopted strategy of OTP Bank, the objective is to have at least one female member on both the management board and the supervisory board. Only the general meeting has an influence on the composition of the board, as the company is a public limited company. This makes the implementation of any national quota law challenging. Regarding the measures, the company did not share any information. As for

MOL, the diversity strategy is more detailed. They have a framework especially designed to support inclusion and raise awareness of its importance. The firm tries hard to increase the number of female board members, they have bottom-up strategy. In 2023, 36.4% of all employees recruited were women, a higher proportion than the proportion of female employees in the group. The company's gender equality performance is regularly measured, and a briefing on the experience is provided to the senior management every six months. MOL has also designed a fresh graduate program called Growww, in which about half of the selected graduates are already women. At the same time a management training program was also launched, with a female participation rate of about 36% in 2022. The selection process requires that at least one female candidate is interviewed and that a female colleague is present among the interviewers.

Waberer's has not shared any objectives or measures to support gender equality. All the analyzed Hungarian companies have some kind of diversity policy and sustainability reports; they are all committed to equal remuneration. Three out of the five examined reports lack progress monitoring or are not focused enough on equality securing tools (OTP; 2024; MOL; 2024; RG; 2024; Zwack Unicum; 2024a, 2024b; Waberer, 2024).

## **SUMMARY AND RESULTS**

Central and East European countries rejected the proposal of the Council of the European Parliament regarding the introduction of gender equality directive. Despite already having their own national gender quota law, even West European countries opposed the idea of union-level directive. However, it still entered into force in November 2022. Although national implementation of the legislation can differ by country, it is an unrealistic expectation from companies in countries like Poland, Hungary, Czechia, and Slovakia to meet the set target. Only Poland had previously soft gender quota in practice, the rest of the countries had no binding national quota laws. Previously these countries did not have robust enforcement mechanisms and

reporting requirements, also the cultural and political climate, just like in case of Hungary and Slovakia, is not as supportive of gender equality as that of the Western countries. Weak civil society engagement and legal loopholes in gender issues are still notable obstacles to directive implementation in the CEE region. V4 countries are among the slowest and most reluctant ones to comply with the intervention. Despite not having national level supporting measures, some local, leading companies still implemented proactive internal gender diversity measures.

Among the analyzed companies the Czech Republic and Hungary located companies had the most detailed sustainability reports. Polish companies have some room for improvement in terms of reporting, but not as much as the Slovakian ones. In terms of gender pay gap monitoring, Czech companies have outstanding performance compared to the rest. Majority of companies do not communicate their objectives and progress well. Transparency gaps are notable in every country examined, given many firms fail to publish concrete targets and measures in their sustainability reports, so improvement of the reports is necessary.

As for the gender equality supporting measures, companies in many cases are not initiative-taking enough. However, there are still firms with well-functioning, updated measures like Richter Geodeon, LPP, Philip Morris and some of the financial institutions. In most cases measures are applied in the field of recruitment such as shortlist policies, or in talent management like upskilling courses. Nowadays work-life balance programs are also gaining popularity. These measures are the steps leading to the destructing inequalities between women and men on the company boards. The introduction of more supporting measures like leadership academies, courses focused on unconscious bias, and work-life balance programs could further enhance the women managers' career opportunities at listed companies in the region.

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**PART III:  
REGIONAL DEVELOPMENT, BUSINESS STRATEGY,  
AND SUSTAINABILITY**



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# LITERATURE REVIEW ON THE ROLE OF ECONOMIC MICRO-AGENTS IN THE RELATED DIVERSIFICATION OF REGIONS

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## INTRODUCTION

Since the introduction of the concept of relatedness as a framework to understand regional diversification (Hidalgo et al., 2007; Neffke et al., 2011), a large body of literature has investigated the influence of various contextual and structural factors on diversification trajectories. These include institutions (Boschma & Capone, 2015; Sweet & Eterovic Maggio, 2015), technological change (Lapatinas, 2019), scientific research (Balland & Boschma, 2022), financial resources (Antonietti & Franco, 2021), and development stages (Pinheiro et al., 2022). At its core, the relatedness framework builds on the idea that regions are more likely to diversify into industries that are cognitively or technologically similar to their existing economic structure. In principle, two activities - such as products, industries, or research areas - are considered related when they require similar knowledge or inputs. For instance, shirts and blouses are related because they rely on comparable materials and manufacturing techniques. In practice, however, the knowledge and inputs used in production are often only imperfectly observable (Hidalgo et al., 2018).

As a result, methods used to infer relatedness typically focus on outputs rather than inputs. By analyzing outputs such as the co-export of products or the flow of labor between industries, it is possible to derive the interrelatedness of products or industries indirectly. This method can be applied to a variety of activities - such as technology domains, research areas, or export baskets - and allows for the calculation of the probability that a location will develop new activities, based on the number of related activities already present in that location.

While relatedness has become a central explanatory concept for regional development and transformation, one aspect that remains underexplored is the role of micro-level agents - such as firms, start-ups, and multinational enterprises (MNEs) - in shaping diversification trajectories. As early as 2017, Boschma et al. emphasized in their research agenda that “the regional diversification literature needs to incorporate a micro-perspective in which the focus is on the role of agency and the identification of agents that drive the process of regional diversification” (p. 3). In a related critique, Kogler (2017) highlighted that studies on relatedness often fail to establish a clear link to the actual economic sphere and its agents. This review seeks to address this conceptual and empirical gap by synthesizing existing literature on the role of economic micro-agents in the context of relatedness and regional diversification. Addressing this gap is relevant for two reasons. First, most policy-oriented applications of the relatedness framework focus on identifying “what” a region should diversify into - but say little about “who” enables or constrains that process. A better understanding of micro-agents might allow for more actor-specific and implementable policy recommendations. Second, even when regions share similar industrial structures, they often show very different diversification outcomes. These differences may in part be explained by the presence, absence, or other factors specific to certain micro-agents. This literature review is structured as follows: Section 2 introduces the conceptual background of the relatedness approach. Section 3 presents and categorizes the empirical literature on economic micro-agents based on methodological approaches. Section 4 compares and synthesizes findings across the reviewed studies. The final section (5) identifies research gaps and proposes directions for future research.

## **CONCEPTUAL BACKGROUND: RELATEDNESS AND THE ROLE OF MICRO-AGENTS**

The concept of relatedness has become a key framework for understanding regional diversification and structural change. While different methods exist to measure relatedness, they generally share

the assumption that regional diversification is a path-dependent process, that relies heavily on the pre-existing productive structure and capabilities present in a region (Hidalgo et al., 2007; Neffke et al., 2011). The terms capabilities and productive structure are used as umbrella terms for a region's local assets, such as infrastructure, natural resources, institutions, and skills (Boschma, 2017). These capabilities enable regions to create new products and activities but also constrain the diversification when a region lacks specific capabilities. As a result, regions are more likely to diversify into industries that are technologically or cognitively similar to their current activities (Boschma & Frenken, 2011). This is based on the assumption that related activities can draw on shared capabilities in the form of tangible inputs such as present infrastructure, or intangibles, such as norms, institutions, and skills, which lower entry barriers and increase the chances of becoming competitive in a related industry, technology or product (Boschma & Frenken, 2011; Hidalgo, 2009; Neffke et al., 2018).

The following section introduces briefly two of the most prominent relatedness concepts, both of which play a central role in the reviewed papers. One prominent method is the so-called Product Space proposed by Hidalgo et al. (2007). This approach quantifies relatedness using a proximity measure, which reflects the likelihood that two products are co-exported by the same country. The underlying assumption is that products frequently exported together require similar capabilities or inputs and are therefore considered related. This probability in turn can be used as an indicator to predict which product a region or country will most likely export in the future based on related products that this country already exports. This allows the mapping of product relatedness, which can be visualized as the so-called Product Space (Hidalgo, 2009; Hidalgo et al., 2007).

In this context, diversification is typically classified as either related or unrelated. Related diversification refers to the introduction of products that are similar to those a region already exports, meaning they draw on existing capabilities. Unrelated diversification, by contrast, involves products that are not connected to the region's existing export basket and therefore rely on capabilities that are not yet present or fully developed.

An alternative approach is the skill-relatedness method (Neffke et al., 2011), which infers industry relatedness from observed labour mobility between industries. It assumes that worker flows reflect similarity in required capabilities: industries are considered related if more workers switch between them than expected based on industry size and general labour market dynamics. The underlying assumption of this approach is that individuals are more likely to change jobs among industries that are skill related than among those that are not. When large labour flows are observed between two industries, this is interpreted as an indication of skill-relatedness. At the regional level, a capability-relatedness measure is constructed by aggregating the relatedness scores between a target industry and the industries already present in the region. This indicates whether a region has the relevant skills to support diversification into that sector. Diversification is defined as the emergence of industries not previously present in a region. If these new sectors are closely related to the existing industry structure, this is referred to as related diversification; if not, it is unrelated diversification.

Despite the strengths of these structural approaches, scholars have increasingly emphasized the need to account for the role of agency in regional transformation. Regional diversification does not occur automatically along paths of relatedness - it is shaped by the actions of firms, entrepreneurs, and other micro-level agents (Boschma, 2017; Grillitsch & Sotarauta, 2020). These agents make strategic decisions, mobilize resources, and reconfigure knowledge in ways that can either reinforce existing trajectories or initiate new ones (MacKinnon et al., 2009; Martin & Sunley, 2006). This line of thinking connects with the broader literature on firm behaviour and dynamic capabilities. From a resource-based view, firms are heterogeneous bundles of capabilities that condition their ability to recognize, absorb, and recombine knowledge (Teece et al., 1997). Especially in contexts of structural change, it is not only the availability of related capabilities that matters, but also which agents activate them, and how. Multinational enterprises (MNEs), for instance, may introduce new knowledge to a region through inward investment, while start-ups and local incumbents may draw on embedded capabilities to incrementally expand into related domains.

## **LITERATURE REVIEW: MICRO-AGENTS AND RELATED DIVERSIFICATION**

While the theoretical and conceptual literature has emphasized the need for a micro-perspective in understanding regional diversification, empirical studies on this topic remain relatively scarce. However, recent studies have begun to examine how different types of firms – such as start-ups, incumbents, and multinational enterprises (MNEs) – shape diversification dynamics. These contributions differ not only in their actor focus but also in the way they measure relatedness. This section reviews key studies along four methodological approaches. This categorization helps to reveal how methodological choices influence which agents appear as central to regional diversification, and under which conditions they exert transformative effects.

### *SKILL-BASED RELATEDNESS:*

#### *LABOUR FLOWS AND CAPABILITY MATCHING*

One of the earliest micro-founded studies in this domain is Neffke et al. (2018), which analysed regional diversification in Swedish regions using matched employer-employee across 110 labour market areas and over seven hundred different industries for the years 1994 to 2010. By observing labour flows between industries, they infer a measure of skill-relatedness and construct indicators of how well industries align with regional capability bases. Within their approach, the authors distinguish between two types of regional diversification, namely industrial change and unrelated regional diversification. While the former describes shifts in the composition of local industries, it is only the change of local industry composition in combination with the transformation of the local capability which they regard as unrelated diversification or structural change. Based on this, they investigate which agents - new establishments or existing firms (incumbents) - are more responsible for industrial change or unrelated diversification. Their findings suggest that incumbents tend to reinforce the existing regional capability base, whereas especially non-local entrepreneurs and new establishments from firms outside the region are more likely

to introduce activities unrelated to the current regional structure and thereby contribute to structural change.

Elekes et al. (2019) apply the same approach to Hungarian regions, distinguishing firms by ownership (foreign vs. domestic) and life-cycle stage (entrants, growing, declining, exiting). Their study focuses on the manufacturing capability base of 67 Hungarian regions between 2000 and 2009, building on the method introduced by Neffke et al. (2011) to measure skill-relatedness between industries based on labour flows. Their findings show that foreign-owned firms (MNEs) initially tend to introduce unrelated activities into Hungarian regions, thus driving short-term structural change through non-local diversification. Over time, however, especially growing or exiting MNEs align more closely with the regional capability base, indicating a long-term shift toward more related activities. This adaptation is particularly notable in the Budapest region, where foreign firms show a stronger match with local capabilities compared to other areas. In contrast, in the manufacturing integration zone, in the north-western part of the country, foreign firms are less aligned with the regional structure, and the differences between foreign and domestic firms are less pronounced, indicating that regional context matters. Overall, MNEs act as key agents of structural change, especially in the capital and peripheral regions, with a disruptive short-term impact that becomes more embedded and locally adapted in the long run.

These studies demonstrate that labour-flow-based relatedness is particularly effective for identifying regional capability gaps and understanding which types of firms - such as new establishments or incumbents - are able to bridge them. Thereby helping to distinguish whether regional diversification is driven endogenously by incumbent firms reinforcing existing structures, or exogenously by new, often non-local agents - such as fast-growing foreign-owned firms or entrepreneurs from another region - who introduce new capabilities. However, the findings also indicate that not all agents exhibit a stable impact over time.

### *PRODUCT-BASED RELATEDNESS AND ECONOMIC COMPLEXITY*

A different approach focuses on product-level proximity. Qiao et al. (2024) analyse how MNEs shape regional diversification in China using firm-level data and a modified Revealed Comparative Advantage framework based on the employment of manufacturing firms in the timeframe of 1998-2007. The authors combine relatedness with complexity measures following an approach proposed by Balland et al. (2019) to define whether an industry is less related or more related to a region's productive structure and to measure the complexity of the region and the industry. By comparing the complexity and relatedness of an industry to their regional measures, the authors distinguish four different diversification paths across all industries and regions of the sample. They then investigate whether the presence of MNEs in related or unrelated industries within a region increases the probability of entry into one of the four diversification trajectories. Their results show that the presence of foreign MNEs both in the same and related industries may favour new industry entries within Chinese regions. Furthermore, they show that the operations of MNEs in sectors can drive "leapfrogging" diversification, enabling regions to enter unrelated and technologically complex industries. Notably, this effect is strongest when MNEs are present in industries related - but not identical - to those already established locally.

Using firm-level product data, Lo Turco and Maggioni (2016) examine whether the introduction of a new product by a firm is more influenced by a firm's existing product basket or by the surrounding regional product basket during the period of 2005-2009 in Turkey. They also investigate the role of firm heterogeneity in shaping regional and firm diversification paths. Based on Hidalgo et al.'s (2007) relatedness approach, they build indicators to reveal the relatedness between firms' and provinces' capabilities endowment and highlight products that firms will most likely introduce. Using various firm characteristics, they differentiate between types of firms - such as by size, productivity, internationalization, foreign ownership, R&D intensity, and multi-plant structure - to assess how firm-level heterogeneity influences the degree to which firms rely on internal versus regional capabilities when introducing new products.

Their findings suggest that the introduction of a new product is influenced by both, the firm internal capabilities as well as the local productive regional structure. Yet their findings also highlight that in less developed regions (such as the eastern part of Turkey) the firm internal capabilities are more important as there are fewer regional capabilities to draw on. Regarding firm heterogeneity, their findings show that MNEs are less embedded in their local capability structures and are less dependent on regional capabilities, as they can rely more heavily on internal resources when introducing new products. On the other hand, smaller and less productive firms are more reliant on their regional capabilities to introduce new products. In a subsequent study, Lo Turco and Maggioni (2019) build on this approach by shifting the focus from firm-level diversification in general to the emergence of so-called “local discoveries” - products that are new both to the firm and to the region. Using the same firm-level dataset, they explore how external knowledge sources, particularly foreign multinational enterprises (MNEs), local imports, and domestic firms, influence the probability that a firm introduces such regionally novel products. Their findings suggest that MNEs play a particularly important role in enabling firms to “leapfrog” into unrelated and technologically complex industries, especially when MNEs are active in sectors that are related - but not identical - to existing regional capabilities. In contrast, imports and domestic firms are less influential in driving such breakthrough diversification.

These studies show that applying product-level relatedness to firm-level data reveals how diversification is shaped by both internal firm capabilities and regional opportunity structures. MNEs play a key role in enabling complex and unrelated diversification, particularly when active in sectors related - but not identical - to existing local strengths. This firm-level perspective uncovers mechanisms of structural change that aggregate analyses often miss.

#### *SECTORAL VARIETY AND COGNITIVE PROXIMITY*

Fritsch & Kublina (2018) investigate the relationship between related and unrelated variety and regional growth in West Germany. While related variety and related diversification both originate from

evolutionary economic geography and are closely related, they are analytically and conceptually distinct (Boschma, 2017). Related variety refers to the structural presence of cognitively similar industries within a region (Frenken et al., 2007), while related diversification describes the dynamic process by which firms or regions expand into new, but related, activities over time (Neffke et al., 2011). Using employment data, they measure industrial diversity using entropy-based indicators of related and unrelated variety, capturing the distribution of employment across cognitively similar and dissimilar industries within a region. They then explore how start-ups and R&D intensity interact with regional variety. They find that unrelated variety contributes positively to regional employment growth, particularly in regions with high start-up rates, indicating that start-ups moderate the relationship between unrelated variety and growth, enabling regions to benefit more from diverse industrial structures. In regions with low start-up activity, unrelated variety does not translate into growth. This suggests that in highly entrepreneurial regions, unrelated variety may support broader structural transformation processes, as indicated by positive employment effects. This supports the idea that start-ups may facilitate the transformation of unrelated knowledge combinations into economic opportunities, by enabling experimentation and variety absorption.

Fritsch and Kublina's (2018) study broadens the empirical lens by focusing not on direct firm-to-product links, but on structural diversity as an enabling condition for micro-level innovation. It complements the previous approaches by framing diversification as both an actor-driven and environment-enabled process.

#### *QUALITATIVE AND MIXED-METHODS INSIGHTS*

Hervas-Oliver et al. (2024) offer a mixed-methods case study of Spain's Toy Valley. Combining patent analysis, interviews, and historical firm data, they examine whether regionally embedded or firm-level capabilities drive regional diversification. Their approach is focused on regional diversification from a firm-level heterogeneity perspective, studying the drivers and the agents of change at the micro-level. While referring to Hidalgo et al. (2007) to situate their

study within the literature on relatedness and regional diversification, the authors do not adopt a formalized relatedness metric. Instead, they qualitatively analyse the evolution of firm-level diversification over time by combining three sources: patent data, historical records of firms, and interviews with local actors. By tracing which firms diversified into which new products and how these changes unfolded within the district, they illustrate the mechanisms of regional diversification. Their findings suggest that regional diversification is primarily shaped by firm-level capabilities rather than embedded regional capabilities, highlighting that regional branching into new products occurs through firm-level related diversification, where firms recombine their own heterogeneous capabilities with Marshallian externalities - such as local suppliers, knowledge networks, and skilled labour - present in the local environment. Rather than emerging from a broad regional capability base, diversification is the result of firm-specific innovation processes, intensive local search, and capability recombination. They also highlight that in intermediate regions, with limited infrastructure and industries, the diversification process tends to be industry- and product-based rather than technology-based, rooted in the recombination of existing firm and local resources.

Hervas-Oliver et al.'s (2014) study highlights that regional diversification is not merely driven by structural conditions but emerges from the actions of micro-level agents - firms that actively recombine their heterogeneous capabilities with locally embedded resources. By tracing these firm-level processes, the study reveals how diversification is shaped from the bottom up, emphasizing the role of firms as agents of structural change. It further demonstrates the value of mixed-methods research for uncovering the mechanisms of diversification that remain hidden in aggregate datasets.

## **DISCUSSION AND OUTLOOK**

The empirical literature reviewed in the previous section underscores that regional diversification is not solely a function of structural relatedness, but also of the agency of economic agents operating within

and across regions. While the theoretical logic of relatedness predicts which activities are likely to emerge based on existing capabilities, it is ultimately firms and entrepreneurs who initiate, shape, and sustain diversification trajectories. Across methodological approaches, several key patterns can be observed.

One key pattern is that different types of micro-agents play distinct roles. As such, incumbent firms are generally associated with incremental, path-dependent development, while they tend to reinforce existing specialization patterns and diversify into closely related activities. In contrast, new entrants and external agents - particularly foreign MNEs - often enable more transformative forms of diversification, including into unrelated and complex domains. This distinction is especially pronounced in peripheral regions, where endogenous capabilities may be lacking, and external firms serve as knowledge vectors. Another key finding is that the measurement of relatedness shapes empirical findings. Studies based on skill-relatedness (Neffke et al., 2018; Elekes et al., 2019) emphasize the capability matching between industries and are well-suited to analysing labour mobility and human capital embeddedness. In contrast, product-based approaches (e.g., Lo Turco & Maggioni, 2016; Qiao et al., 2024) offer a fine-grained view of firm-level diversification behaviour and knowledge recombination. Lastly, variety-based models (Fritsch & Kublina, 2018) frame structural diversity as a source of innovation, particularly when combined with high absorptive capacity. This diversity of methods is analytically valuable, but it also makes findings difficult to compare systematically. Few studies directly contrast multiple types of relatedness or test their implications across different regional contexts and actor types. Another key finding is that contextual factors condition the effects of micro-agents. Regional characteristics - such as economic maturity, industrial structure, and openness - shape how firms act as diversification agents. In advanced regions, local firms often drive capability recombination and innovation, while in lagging regions, MNEs and external firms may compensate for missing capabilities. However, the effectiveness of these agents also seems to depend on institutional quality, absorptive capacity, and the degree of their embeddedness in local networks.

Despite recent advances, the literature on micro-agents in related diversification remains conceptually and empirically fragmented. Several research gaps persist and call for more systematic inquiry. First, longitudinal dynamics are insufficiently addressed: existing studies tend to offer static snapshots of diversification processes, while little is known about how firms' roles evolve over time or how diversification trajectories are sustained, redirected, or abandoned. Second, the interaction between micro-level agency and macro-level structures - such as institutional contexts, regional policy regimes, or global value chains - remains undertheorized and poorly integrated into existing frameworks. This is particularly relevant when analysing firms in the context of international production processes - especially regarding outsourcing - where the mere presence of a company may not always be equated with the presence of all associated capabilities. Third, comparative designs are notably scarce; few studies systematically compare regions, actor types, or operationalizations of relatedness within a unified analytical approach. Finally, while firm-level product data provide granular insight into diversification behaviour, such datasets remain underutilized. Their broader application could substantially enhance the explanatory power of diversification research, particularly regarding the mechanisms through which firms navigate and shape regional transformation processes.

## **CONCLUSION AND FUTURE DIRECTIONS**

This review has shown that regional diversification is not solely driven by the existing regional structure but fundamentally shaped by the agency of firm types: Incumbents tend to reinforce existing specialization, while new entrants and especially MNEs often act as catalysts of structural change. Yet, the studies also highlight that these dynamics are deeply conditioned by regional context - particularly in peripheral regions where external agents may substitute for missing capabilities. Conceptually, the findings suggest that relatedness alone might be an insufficient predictor of diversification. Instead, it should be seen as an opportunity structure that is activated - or left dormant

- by strategically positioned agents. Thus, theoretical frameworks should move toward more integrated models that combine structural opportunity (relatedness) with actor capacity (capabilities, networks, intent) and context (institutional and spatial embeddedness). Empirically, future research would benefit from dynamic designs that trace diversification trajectories over time and across firm types. Longitudinal data could shed light on how firm strategies evolve, how temporary disruptions become lasting transformations, and under what conditions unrelated diversification is sustained. Comparative studies across regions and institutional contexts are likewise needed to distinguish generalizable patterns from context-specific dynamics. Methodologically, better integration of firm-level product and labour data could help reconcile skill- and product-based relatedness measures. Multi-dimensional relatedness metrics, when linked to firm behaviour, could improve explanatory power and enable the development of actor-specific policy tools. Finally, more mixed-methods and case-based research can help unpack the ‘how’ and ‘why’ behind firm-level diversification choices, especially in intermediate or institutionally thin regions.

For policymakers, the evidence cautions against treating relatedness as a purely structural map for smart specialization. Instead, attention must be paid to the presence, capabilities, and incentives of key micro-agents. Supporting the embedding and capability-building of MNEs, empowering high-growth start-ups, and enabling knowledge recombination within local incumbents are not just complementary strategies they are central levers of transformative regional development.

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## **SUSTAINABILITY REPORTING AND ITS INFLUENCE ON STAKEHOLDER DECISION-MAKING**

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### **INTRODUCTION**

In the European Union, sustainability reporting has become a central topic in both academic research and professional financial practice. The increasing demand for corporate transparency, driven by climate-related financial risks, social accountability, and governance standards, has led to the institutionalization of Environmental, Social, and Governance (ESG) reporting across the EU. This shift is particularly relevant in the fields of finance and controlling, where sustainability metrics are now being integrated into performance measurement, risk assessment, and strategic planning.

The literature emphasizes that ESG reporting is no longer a peripheral activity but a core component of corporate value creation and risk management (Cohen, 2023). Researchers highlight the growing importance of aligning sustainability disclosures with financial performance indicators, especially in light of the EU's Corporate Sustainability Reporting Directive (CSRD) and the European Sustainability Reporting Standards (ESRS) (Gopal & Pitts, 2025). These frameworks aim to standardize non-financial reporting and ensure that sustainability-related risks and opportunities are reflected in corporate decision-making processes.

From a professional standpoint, finance and controlling professionals are increasingly expected to incorporate ESG data into budgeting, forecasting, and investment analysis. This requires a shift

from traditional financial reporting towards integrated reporting models that capture both financial and non-financial performance. As sustainability becomes a key driver of long-term competitiveness and regulatory compliance, understanding how companies balance environmental responsibility with financial objectives is more critical than ever.

This study is structured as follows: The following research questions aim to explore this evolving intersection between sustainability regulation, stakeholder expectations, and corporate financial decision-making. The literature review explores the evolving role of ESG reporting in corporate financial strategy, focusing on stakeholder expectations, regulatory compliance, financial challenges, and the strategic potential of sustainability as a source of competitive advantage. The study applies a qualitative methodology based on expert interviews conducted in early 2025, offering in-depth insights into how sustainability reporting practices are shaped by stakeholder expectations and regulatory pressures. The discussion highlights the strategic tensions and opportunities revealed through the interviews, emphasizing how ESG reporting serves both as a compliance tool and a driver of long-term value creation in corporate decision-making. Finally, the conclusion and recommendations conclude the takeaways of the research study.

## **RESEARCH QUESTIONS**

This study seeks to explore how sustainability regulations and stakeholder expectations shape corporate decision-making, particularly in balancing environmental responsibility with financial performance. To guide the research, the following central and supporting questions were formulated. The main research question is:

- How do sustainability regulations and stakeholder expectations influence corporate decision-making in balancing environmental responsibility and financial performance?

Supporting research questions are:

- What are the primary financial challenges companies face when

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implementing sustainability initiatives? This question aims to uncover the economic trade-offs and resource constraints that organizations encounter when transitioning to more sustainable practices.

- How can companies effectively balance short-term financial objectives with long-term sustainability goals? This explores the strategic alignment between profitability and environmental responsibility, and how firms manage potential conflicts between the two.
- Is sustainability perceived more as a competitive advantage or as a compliance requirement by corporations? This question investigates whether sustainability is driven by intrinsic corporate values or external regulatory pressures.
- How is the future of sustainability reporting expected to evolve in light of increasing stakeholder and regulatory demands? This addresses the anticipated developments in sustainability disclosure practices, including the role of technology and shifting stakeholder expectations.

## **LITERATURE REVIEW**

### *ESG REPORTING AS A STRATEGIC FINANCIAL INSTRUMENT*

Over the past decade, ESG (Environmental, Social, and Governance) reporting has evolved from a peripheral concern into a central element of corporate strategy and financial management. This shift is particularly evident in the European Union, where regulatory frameworks such as the Corporate Sustainability Reporting Directive (CSRD) and the European Sustainability Reporting Standards (ESRS) have institutionalized sustainability disclosure as a legal obligation for large companies. These frameworks aim to ensure that sustainability-related risks and opportunities are integrated into corporate decision-making and financial reporting processes (Vivel-Búa et al., 2023).

The academic literature supports this transformation. ESG reporting is increasingly viewed as a strategic tool that enhances long-term corporate value and mitigates financial risk (Friede et al., 2015). A meta-analysis of over 2,000 empirical studies found

that approximately 90% of the research identified a non-negative relationship between ESG performance and corporate financial performance (CFP), with the majority indicating a positive correlation (Friede et al., 2015). This suggests that ESG integration is not merely a compliance exercise but a value-generating activity.

Moreover, ESG reporting contributes to improved capital allocation and investor confidence. Firms with high ESG scores tend to enjoy lower capital costs and greater access to sustainable finance instruments, such as green bonds and ESG-linked loans (Luciano & Tolomeo, 2025). These financial advantages are particularly relevant in the context of increasing investor scrutiny and the growing popularity of responsible investment strategies.

In the context of finance and controlling, ESG metrics are now being incorporated into performance dashboards, risk models, and investment appraisals. This integration reflects a broader trend toward aligning financial and non-financial indicators in corporate reporting systems (Maaloul et al., 2023). As a result, ESG reporting is no longer an isolated function but a core component of strategic financial planning.

## **STAKEHOLDER EXPECTATIONS AND ESG DISCLOSURE**

Stakeholder theory posits that companies must consider the interests of all parties affected by their operations—not only shareholders, but also employees, customers, suppliers, and the broader community (Freeman, 1984). In the context of ESG reporting, stakeholder expectations have become a powerful driver of corporate transparency and accountability. Recent studies show that stakeholder pressure significantly influences the scope and quality of sustainability disclosures. For example, companies operating in stakeholder-sensitive industries (e.g. consumer goods, finance) tend to publish more comprehensive ESG reports, particularly when facing reputational risks or activist scrutiny (Amel-Zadeh & Serafeim, 2018). Moreover, institutional investors increasingly demand ESG data to assess long-term risks and opportunities, especially in the context of climate-

related financial disclosures (Krueger et al., 2020).

In the European Union, the CSRD explicitly requires companies to conduct double materiality assessments, which consider both the financial impact of sustainability issues and the company's impact on society and the environment. This approach reflects a broader shift toward stakeholder-oriented governance models, where ESG reporting serves as a communication tool between firms and their diverse constituencies (García-Sánchez et al., 2025).

From a financial controlling perspective, stakeholder expectations are increasingly embedded in key performance indicators (KPIs), incentive systems, and internal audit processes. This alignment ensures that ESG goals are not only communicated externally but also operationalized internally.

## **FINANCIAL CHALLENGES OF ESG IMPLEMENTATION**

Despite the strategic benefits of ESG integration, companies often face significant financial and operational challenges when implementing sustainability initiatives. These include high upfront costs, uncertain return on investment (ROI), and the complexity of aligning ESG goals with existing business models.

Empirical research confirms that ESG implementation is associated with increased capital expenditures, particularly in the early stages of transition (Flammer, 2021). For example, investments in renewable energy, sustainable supply chains, or circular economy models often require long payback periods and carry regulatory uncertainty. This creates tension between short-term financial performance and long-term sustainability objectives.

Moreover, the lack of standardized ESG metrics and reporting frameworks can lead to inefficiencies and increased compliance costs. A study by Christensen et al. (2021) found that firms often struggle to collect, verify, and report ESG data across complex global operations, especially in the absence of harmonized standards. This is particularly burdensome for small and medium-sized enterprises (SMEs), which may lack the resources to meet evolving disclosure requirements. To

address these challenges, some firms adopt phased implementation strategies, prioritize material ESG issues, or leverage external financing instruments such as green bonds and sustainability-linked loans (Luciano & Tolomeo, 2025). These approaches help mitigate financial risks while maintaining regulatory compliance and stakeholder trust.

Balancing short-term financial objectives with long-term sustainability goals requires a strategic approach that integrates ESG considerations into core business planning. Several studies emphasize the importance of aligning sustainability targets with financial KPIs, using tools such as ESG scorecards, integrated reporting frameworks, and performance-based incentive systems (Eccles et al., 2014; Maaloul et al., 2023). By embedding ESG metrics into budgeting and forecasting processes, firms can ensure that environmental and social objectives are not treated as externalities but as integral components of value creation. This alignment also facilitates internal accountability and supports more resilient, forward-looking decision-making.

### **SUSTAINABILITY: COMPETITIVE ADVANTAGE OR COMPLIANCE REQUIREMENT?**

A central debate in the ESG literature concerns whether sustainability initiatives are primarily driven by regulatory compliance or by the pursuit of competitive advantage. While early ESG adoption was often voluntary and reputationally motivated, recent regulatory developments—particularly in the EU—have made sustainability reporting a legal obligation for many firms (García-Sánchez et al., 2025).

Nonetheless, empirical studies suggest that companies can derive substantial strategic benefits from proactive ESG engagement. Firms with strong ESG performance tend to outperform peers in terms of innovation, brand loyalty, and employee retention (Eccles et al., 2014). For example, sustainable product innovation has been linked to increased market share and customer satisfaction, especially among environmentally conscious consumers (Flammer, 2021). Moreover,

ESG leadership can serve as a signal of long-term orientation and risk management capability, which is increasingly valued by investors. A study by Albuquerque et al. (2019) found that firms with high ESG ratings exhibited lower stock return volatility and greater resilience during market downturns. This suggests that ESG performance is not merely a cost centre but a source of financial stability and strategic differentiation. However, the benefits of ESG engagement are not evenly distributed. In some sectors, ESG compliance is perceived as a regulatory burden rather than a value-adding activity, particularly when reporting requirements are complex or misaligned with business models (Christensen et al., 2021). This tension underscores the need for sector-specific ESG strategies that balance compliance with innovation.

Taken together, stakeholder expectations and regulatory frameworks exert a dual influence on corporate decision-making. On the one hand, firms are compelled to comply with increasingly stringent disclosure requirements; on the other, they must respond to evolving stakeholder demands for transparency, ethical conduct, and environmental responsibility. This dual pressure shapes strategic choices, particularly in how companies allocate resources, manage risks, and communicate performance. As ESG reporting becomes more embedded in financial governance, it serves not only as a compliance mechanism but also as a guide for navigating trade-offs between profitability and sustainability (Vivel-Búa et al., 2023).

## **THE FUTURE OF SUSTAINABILITY REPORTING: TRENDS AND TECHNOLOGIES**

The future of sustainability reporting is shaped by two major forces: regulatory evolution and technological innovation. In the European Union, the CSRD and ESRS are expected to significantly expand the scope, depth, and comparability of ESG disclosures. These frameworks mandate detailed reporting on environmental impact, social responsibility, and governance practices, including forward-looking metrics and scenario analyses (Bini et al., 2023).

At the same time, digital technologies are transforming how ESG data is collected, analysed, and communicated. Big data analytics, artificial intelligence (AI), and blockchain are increasingly used to enhance the accuracy, timeliness, and transparency of sustainability reporting (Gopal & Pitts, 2025). For example, AI-powered tools can automate data extraction from enterprise systems, identify anomalies, and generate predictive insights for ESG performance.

Blockchain technology offers potential for immutable, verifiable ESG records, particularly in supply chain transparency and carbon accounting. Meanwhile, cloud-based platforms enable real-time ESG dashboards that support internal decision-making and external reporting.

Despite these advances, challenges remain. The environmental footprint of digital infrastructure, data privacy concerns, and the need for skilled personnel may limit the scalability of tech-driven ESG solutions (Cohen, 2023). Moreover, the integration of ESG technologies into existing financial systems requires careful change management and cross-functional collaboration. Nevertheless, the convergence of regulatory pressure and digital innovation is likely to accelerate the mainstreaming of ESG reporting, making it an integral part of corporate governance and financial strategy.

## **METHODS AND DATA**

This study employs a qualitative research design to explore how sustainability regulations and stakeholder expectations influence corporate decision-making. The primary data source consists of a series of semi-structured expert interviews conducted with eight professionals actively engaged in ESG reporting and sustainability strategy development.

### *INTERVIEW DESIGN AND PARTICIPANTS*

The interviewees were selected based on their direct involvement in sustainability reporting and their ability to provide insights from different sectors and organizational perspectives. Participants

included ESG controllers, sustainability leads, and corporate reporting specialists from multinational corporations and financial institutions, as well as audit consultancy firms, with headquarters in Budapest and Pest County. The interviews were conducted during the first quarter of 2025. Most were held via video call and lasted approximately 45–60 minutes, while others were completed in written form due to scheduling constraints. An interview guide was developed to ensure thematic consistency while allowing for open-ended, exploratory responses. The guide included questions on stakeholder influence, financial challenges, regulatory compliance, and the future of sustainability reporting.

#### *DATA COLLECTION AND ANALYSIS*

The interviews were transcribed and analysed manually, following a thematic content analysis. Key themes were identified based on the research questions, including stakeholder pressure, financial trade-offs, strategic alignment, and technological developments in ESG reporting. The analysis focused on identifying both converging and diverging viewpoints, as well as illustrative examples from the participants' professional experience.

#### *ETHICAL CONSIDERATIONS*

All participants provided informed consent, and their identities are disclosed with permission where applicable. The research adhered to ethical standards for qualitative inquiry, including voluntary participation, confidentiality, and the right to withdraw at any time.

### **DISCUSSION**

The findings of this study highlight the complex interplay between regulatory frameworks, stakeholder expectations, and corporate financial strategy in the context of sustainability reporting. The expert interviews revealed that while ESG reporting is increasingly institutionalized—particularly in the European Union through

the CSRD—its implementation remains uneven across sectors and organizational levels. One of the most salient insights is the dual nature of stakeholder pressure. On the one hand, investors, consumers, and employees are demanding greater transparency and accountability. On the other hand, companies often perceive ESG reporting as a compliance burden rather than a strategic opportunity. This tension reflects a broader challenge in aligning short-term financial performance with long-term sustainability goals—a theme echoed in both the literature (Flammer, 2021; Eccles et al., 2014) and the interview data. An ESG controller from a consulting firm highlighted that increasing client demand for transparent sustainability metrics had led to the development of a dedicated ESG reporting unit within the company.

The interviews also confirmed that financial challenges remain a major barrier to ESG integration. High initial costs, uncertain returns, and regulatory ambiguity were cited as key obstacles. The ambiguity stems from the evolving nature of ESG regulations, the lack of harmonized reporting standards across sectors, and uncertainty regarding how compliance will be interpreted by regulators and investors. These findings are consistent with prior research emphasizing the need for phased implementation strategies and the use of financial instruments such as green bonds to mitigate risk (Luciano & Tolomeo, 2025).

Interestingly, several interviewees emphasized the importance of internal alignment—embedding ESG metrics into performance evaluation systems, incentive structures, and strategic planning. For instance, one sustainability lead from a financial institution noted that ESG metrics had recently been incorporated into the annual bonus scheme for middle managers, reinforcing internal accountability. This supports the argument that sustainability must be operationalized across all levels of the organization to be effective. It also reinforces the idea that ESG reporting is not merely a disclosure exercise but a governance mechanism that shapes decision-making.

Finally, the role of technology emerged as a critical enabler of future ESG reporting. While digital tools such as AI and big data analytics can enhance the accuracy and efficiency of reporting, concerns about

their environmental footprint and ethical implications remain. This paradox underscores the need for a balanced approach that leverages innovation without undermining sustainability objectives. For example, an officer from a manufacturing company noted that while AI-based tools were being piloted for ESG data collection, the lack of internal expertise and high implementation costs remained significant barriers.

In sum, the discussion reveals that ESG reporting is both a regulatory necessity and a strategic lever. Its effectiveness depends on how well companies can navigate stakeholder demands, financial constraints, and technological opportunities—while maintaining a clear focus on long-term value creation.

## **CONCLUSION AND RECOMMENDATIONS**

### *CONCLUSION*

This study examined how sustainability regulations and stakeholder expectations influence corporate decision-making, with a particular focus on the financial and strategic implications of ESG reporting. Drawing on expert interviews conducted in early 2025, the findings reveal that while ESG reporting is increasingly institutionalized in the European Union, its implementation remains uneven and often perceived as a compliance burden rather than a strategic asset.

Stakeholder pressure —especially from investors, employees, and consumers— emerged as a key driver of sustainability disclosure. However, companies continue to face significant financial and operational challenges, including high implementation costs, regulatory uncertainty, and the difficulty of aligning short-term financial goals with long-term sustainability objectives. Despite these barriers, the study also highlights the potential of ESG reporting to enhance corporate resilience, attract responsible investment, and support long-term value creation when integrated effectively into business strategy.

*MAIN RESEARCH QUESTION:*

Sustainability regulations and stakeholder expectations jointly shape corporate decision-making by creating both external pressure and internal incentives. Regulatory frameworks such as the CSRD establish formal requirements for ESG disclosure, while stakeholders—including investors, employees, and consumers—demand transparency and accountability. Together, these forces compel companies to integrate sustainability into their strategic planning, even when doing so involves trade-offs with short-term financial goals.

*Q1 – FINANCIAL CHALLENGES:*

The implementation of sustainability initiatives is often hindered by high upfront costs, uncertain return on investment, and the complexity of aligning ESG goals with existing business models. Interviewees emphasized that these challenges are particularly acute for smaller firms and in sectors where ESG integration is still emerging. Regulatory ambiguity and the evolving nature of reporting standards further complicate financial planning.

*Q2 – BALANCING SHORT- AND LONG-TERM GOALS:*

Balancing short-term profitability with long-term sustainability requires a strategic approach that embeds ESG metrics into financial decision-making. Companies that succeed in this regard typically adopt phased implementation strategies, align sustainability targets with performance indicators, and communicate transparently with stakeholders about the long-term value of ESG investments.

*Q3 – COMPETITIVE ADVANTAGE VS. COMPLIANCE:*

While many companies initially approach ESG reporting as a compliance obligation, the findings suggest that it can evolve into a source of competitive advantage. Firms that proactively integrate sustainability into their operations benefit from enhanced brand reputation, improved employee engagement, and greater investor in-

terest. However, this potential is often underutilized due to a lack of internal alignment or strategic vision.

#### *Q4 – FUTURE OF SUSTAINABILITY REPORTING:*

The future of ESG reporting is expected to be shaped by both regulatory tightening and technological innovation. Digital tools such as AI, big data analytics offer opportunities to improve the accuracy, efficiency, and transparency of reporting. At the same time, companies must remain mindful of the environmental and ethical implications of these technologies.

#### *RECOMMENDATIONS*

Based on the findings, the following recommendations are proposed:

**Strategic integration of ESG:** Companies should embed ESG metrics into core financial planning, performance evaluation, and incentive systems to ensure alignment between sustainability goals and business objectives.

**Stakeholder engagement:** Firms should adopt a proactive approach to stakeholder communication, using ESG reporting not only as a compliance tool but also as a platform for building trust and transparency.

**Phased implementation:** Especially for smaller firms, a gradual approach to ESG integration—prioritizing material issues and leveraging external support such as green financing—can help manage costs and complexity.

**Technology adoption with caution:** While digital tools can enhance reporting efficiency and accuracy, companies should also consider the environmental and ethical implications of these technologies.

**Further research:** Future studies should expand the sample size and include cross-sectoral comparisons to better understand industry-specific challenges. Quantitative methods could also complement qualitative insights and provide broader generalizability.

In conclusion, ESG reporting is not merely a regulatory requirement but a strategic imperative. Companies that embrace sustainability as a core value—not just a compliance obligation—will be better positioned to navigate future challenges and create lasting value for all stakeholders.

### LIMITATIONS

While this study provides valuable insights into the dynamics of sustainability reporting, it is not without limitations. The research is based on a qualitative methodology with a limited number of expert interviews, which, although rich in detail, may not fully capture the diversity of practices across industries or regions. The findings are therefore not intended to be statistically generalizable. Additionally, the study focuses primarily on the European regulatory context, which may limit its applicability to other jurisdictions with different ESG frameworks or stakeholder expectations.

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**PART IV:  
GEOPOLITICAL REALIGNMENTS  
AND CULTURAL IDENTITY**



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## **THE END OF THE NAGORNO-KARABAKH CONFLICT – STRENGTHENING AZERI-TURKISH ALLIANCE IN THE SOUTH CAUCASUS**

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### **THE HISTORY OF THE NAGORNO-KARABAKH CONFLICT AND THE FIRST WAR**

The Nagorno-Karabakh conflict was the longest-lasting and one of the deadliest ethnic conflicts in the post-Soviet space. In the same way as most ethnic-based armed conflicts in the post-Soviet region, the Nagorno-Karabakh conflict also developed in the ethno-federal frames of the Soviet Union, moreover in many respects it is also due to these frames. Following the civil war after the Bolshevik victory, Lenin managed to enforce his vision that the Soviet Union should be organized as a voluntary federation of formally equal republics, in which Russia was no more than one of the republics. As a logical consequence of this plan, the entire Soviet state was built as a hierarchical system of well-defined administrative units. In this hierarchy, individual units had a certain degree of autonomy. At the top, there was the Soviet Socialist Republics, the second level was constituted by the Autonomous Soviet Socialist Republics, and finally the autonomous regions (oblasts) and districts (okrugs) which only had a much limited form of cultural autonomy. The primary intention behind these levels was supposedly to reflect each ethnic group's stage of national development (Zurcher, 2009, p. 36). Republic status was only due to "real nations". Republics and autonomous republics as quasi-states had their own borders, constitution, parliament, and government. What proved even more important in practice was that they used the language of the given ethnic group in public and higher education, as well as in the media. The territory of former Nagorno-Karabakh (Artsakh in Armenian) comprised 4,400 square kilometres,

and it had a population of less than 200 thousand, of which 77 percent were Armenians, and 22 percent Azerbaijanis. Thus, the clear majority in the *oblast* was traditionally composed of Armenians, while the territory never belonged to Armenia in the Soviet times. After the fall of the Russian Empire in 1918, Armenia came under the control of the short-lived Azerbaijan Democratic Republic, importantly, the first secular Muslim republic in history. In fact, this was more *de jure* than *de facto* control. In this short period, Karabakh was practically independent. Nevertheless, it was impossible for it to unite with Armenia; both Armenia and Azerbaijan lay claim to the debated territory.

At a Tbilisi meeting on 3 July 1920, the Kavbiuro, the section the Soviet Communist Party dealing with matters of the Caucasus, where Stalin himself was present, decided that Karabakh would be assigned to Soviet Armenia. But only two days later, the Kavbiuro reversed this decision and assigned Karabakh to Azerbaijan, justifying the move with reference to the economic dependency of Karabakh on the surrounding Azeri territory (Zurcher, 2009, p. 153). Thus, Nagorno-Karabakh became an autonomous *oblast* within Azerbaijan, while the (Azeri dominated) Nakhchivan enclave, which directly bordered only Karabakh but not other parts of Azerbaijan, received a higher level of status, becoming an autonomous republic. It is noteworthy that, within the Soviet Union, Karabakh and Nakhchivan were the two territorial autonomies named after a geographic area rather than a nationality. In addition, Karabakh was the only autonomous region whose titular ethnicity, namely Armenians, was also an ethnicity in a Soviet republic (as the autonomous *oblast* status was reserved exactly for ethnicities that did not have a republic). The position of Nakhchivan was even stranger, as although it was an Azeri-majority territory, it had its autonomy within Azerbaijan.

Even today, the real reasons behind the decision are still unclear. According to some opinions, the Azeri party leaders, emphasizing the importance of oil production, took the position of extortion. Another possible reason is that applying the principle of 'divide and rule', Moscow's intention was to weaken both republics. In addition, we should consider that the Soviet Union was also trying to please

Kemalist Turkey, as they were trying to maintain good relations at the time. Nakhchivan's autonomy was guaranteed also by the Treaty of Moscow in 1921 and the Treaty of Kars confirming it in 1923 (similarly to that of Adjara that formed a part of the Georgian Soviet Socialist Republic). This is how Turkey intended to ensure that Nakhchivan would not be taken under Armenian control (Hunter, 1997, p. 444). Finally, of the three debated territories, Karabakh and Nakhchivan went to Azerbaijan, while Zangezur to Armenia. At that time, both Azerbaijan and Armenia were still part of the Transcaucasian Socialist Federative Soviet Republic, and only the 1936 Soviet Constitution raised them to the status of independent Soviet republics.

Despite their autonomy, in several respects, Armenians in Karabakh were in a weaker position than their co-nationals in the mother country. There was no higher education or electronic media in their language, and Armenian national symbols were not allowed either. This explains why already in the 1960s and 1970s there were repeated eruptions of social discontent, sometimes taking a violent form. The Karabakh crisis started in the autumn of 1987, when mass demonstrations in Yerevan and in Stepanakert, the 'capital' of Karabakh, started to demand that Karabakh should be attached to Armenia. On 20 February 1988, the Karabakh Soviet submitted an official request to the central administration for the transfer of the region to the Armenian Soviet Socialist Republic. By this time, the Azeri population had already started fleeing Karabakh, which was increasingly hostile to them. In the cities of Azerbaijan, anti-Armenian pogroms broke out, with the violence gradually escalating into war in the course of 1988-1989. Following the collapse of the Soviet Union, the conflict took on a new dimension: from a low-intensity internal ethnic conflict, it actually developed into an open war between two independent states.

On 30 August 1991, the Azerbaijani Soviet declared Azerbaijan's independence and, in return, on 2 September Karabakh also declared its independence under the name of Nagorno-Karabakh. Naturally, the war was not between the separatist Karabakh region and Azerbaijan, but between Armenia and Azerbaijan, which gave it international significance. It is important to note at the same time that, officially,

Armenia and Azerbaijan never proclaimed war, thus Armenia did not become a warring party (Lynch, 2001, p. 18).

In the course of 1992-1993, not only did Armenian Karabakh troops take full control of the former Autonomous Karabakh Region, but they also conquered considerable Azeri territories outside Karabakh, as for example, the strategically significant Lachin Corridor between Karabakh and Armenia. Before the 1994 ceasefire agreement, almost 20 percent of Azerbaijan's territory (together with Karabakh) was under Armenian-Karabakh control, and even after the agreement, some 16 percent of Azerbaijan stayed under Karabakh's control. This was much larger than the original size of the former Karabakh Autonomous Region and included a number of originally Azeri-majority regions (e.g., Lachin, *Kelbajar*, *Fizuli*, and *Agdam*) whose population had been made to flee during the conflict. It is noteworthy that the fights did not spread to the Nakhchivan enclave, that in the war years was governed by the former Azeri party head and later head of state Heydar Aliyev as if it was an independent state. Nakhchivan's autonomous status was guaranteed by international treaties with Turkey. Thus, an Armenian attack against Nakhchivan may have triggered Turkey's military intervention (Hunter, 1997, p. 444).

Besides the Armenian's perseverance, Azerbaijan's defeat in the war is due primarily to internal factors. While in Armenia the war forged together the various political groupings, in Azerbaijan it sharpened internal disagreements. For example, in the middle of an Azeri offensive, which was in fact a military success, the warlord Surat Huseynov withdrew his troops from the front, and in May 1993 marched them towards Baku to fight *Abulfaz Elchibey's* government. *At this point, Azerbaijan was close to an open civil war, which was probably avoided thanks to the interference of Heydar Aliyev* (Cornell, 2011, p. 77). From late 1993, Turkey, Iran and, eventually, even Russia protested against the Armenian occupation of territories. On 4 May 1994, with the help of Russian mediation, the warring parties signed a temporary ceasefire agreement in Bishkek, which was followed by a permanent ceasefire agreement concluded on 16 May in Moscow (Cornell, 2011, p. 89).

The ceasefire left the status of Karabakh (as well as of other occupied Azeri territories) largely unclarified. The Nagorno-Karabakh Republic was not recognized by any state, including Armenia. However, the *de facto* union of Nagorno-Karabakh and Armenia happened at this point. Karabakh functioned as an Armenian province; moreover, between 1998 and 2018, Armenia was governed by politicians from Karabakh. President Robert Kocharyan (1998–2008) and his successors Serge Sargissian (2008–2013) and Armin Sarkissian (head of state in 2013–2018) were all from the “Karabakh clan”. It appears that, for about two decades, Armenian politics were captured by the Karabakh conflict (Cornell, 2011, p. 136).

## **TWO DECADES OF THE “FROZEN” KARABAKH CONFLICT: THE ROLE OF THE MINSK GROUP**

The United Nations did not take a direct role in settling the Karabakh conflict. The Security Council decrees condemned all forms of violence and demanded that the territorial integrity of every state in the region should be respected. In addition, they demanded that “the Armenian occupying forces” should withdraw from Azerbaijan, but they did not label Armenia an aggressor. Handling the major conflict was left to the UN and the Organization for Security and Co-operation in Europe (OSCE). In 1992, the OSCE tried to convene a peace conference in Minsk to settle the ongoing war in Karabakh. Although the conference did not actually happen, from that point the OSCE, or more precisely its “Minsk Group”, was the primary forum for handling the Karabakh conflict.

Originally, the Minsk Group comprised eleven states: Azerbaijan and Armenia as the two primarily affected parties, Belarus, Germany, Russia, Turkey, Sweden, Finland, and the three actual states of the OSCE Troika. These countries provided the chairmanship of the Minsk Group on a rotational basis. At the Budapest summit in 1994, as the successful mediator of the Bishkek and Moscow ceasefire, Russia was also involved in the Group, providing permanent co-chairmanship. From 1996, the USA and France were provided permanent co-

chairmanship. This meant that the three co-chair states were regarded as the actual leaders of the Minsk Group (Cornell, 2011, p. 138). Over the years, in the Minsk framework, several alternative solutions were suggested for solving the conflict, including a land swap, a joint state, and placing Nagorno-Karabakh under Azerbaijani sovereignty with the highest level of autonomy (Kocsis, 2001, p. 81). Although the negotiations assisted by the Minsk Group did not yield a comprehensive peace agreement, admittedly this was the forum that provided fairly stable contact between the parties to the conflict and the superpowers with a vested interest in the settlement.

In the meantime, considering the failure of negotiated settlement, the Azeri political leadership, i.e., Heydar Aliyev and his successor son Ilham Aliyev, were making preparations for military revenge. In the 2000s, proportionally to its GDP, Azerbaijan had the highest defence expenses in the Commonwealth of Independent States. In absolute terms, however, this meant that, in 2009, Azerbaijan's military budget was roughly five times as high as Armenia's, and in 2011 eight times (!) as high.

As early as 2011, President Aliyev complacently declared in a not very covert threat intended for Armenia that "Azerbaijan's defence budget exceeds Armenian state budget" (Asbarez, 2011). As a result of the increased military spending, in the 2000s, the Azeri armed forces considerably strengthened its military capabilities. Thanks to procurements primarily from Ukraine, Russia, Belarus, Bulgaria, Israel, and Turkey, the Azeri army's technical superiority over Armenia in tanks, troop carrier vehicles, and fighter planes, and from the 2010s also in drones was unquestionable (JAMNews, 2022).

Considering the failure of a negotiated settlement and the increasingly obvious shift in military potential, for Azeri society as well as for the country's political leadership, a military solution seemed the obvious choice. Probably the successful Operation Storm, that had put an end to the 1995 Krajina Serb Republic, served as an example to the Azeri decision-makers.

In the meantime, the regional balance of power in the Caucasus was gradually shifting in favour of Azerbaijan and its allies. Among the states in the region, Azerbaijan was most successful in freeing

itself from the Russian military presence. In 1993, the Ganja military base was emptied and the last Russian fighting units left Azerbaijan. Although the very same year President Aliyev entered its country into the Commonwealth of Independent States, he did not agree to the repeated establishment of Russian military bases in the Azeri territory. Similarly, a year later, following the ceasefire with Armenians, he refused to consent to having Russian peacekeepers monitor the demarcation line between the warring parties. In 1999, Azerbaijan did not extend its membership in the Collective Security Treaty Organization of post-Soviet successor states.<sup>11</sup> Instead, together with Georgia, Ukraine, Moldova and Uzbekistan, they created GUUAM<sup>12</sup>, an initiative which is officially a free trade organization, but with a slight anti-Russian edge. In 2005 Uzbekistan left the initiative, which thereby started to gradually lose its significance (Freitag & Wirminghaus, 2009, p. 112).

1999, when Vladimir Putin was elected president, saw the beginning of a slow improvement in the rather tense Azeri-Russian relations. The warming was partly due to the good personal relations between Presidents Aliyev and Putin. In addition, following the colour revolutions of the mid-2000s, a type of ideological approach in the foreign policies of the post-Soviet states gained increasing strength. Against the „democratic revolutions” supported by the West, in several cases, Russia intended to be seen as the „protector of autocratic leaders”. This shift of emphasis is especially striking if we compare the Azeri-Russian relations to the dramatic deterioration of Russian-Georgian relations. When the Russian-Georgian War broke out in 2008, Ilham Aliyev was not rushing to Tbilisi to express his solidarity with Georgia in the way the Ukrainian, Polish and Baltic

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11 The so-called Tashkent Pact (Collective Security Treaty Organization) was signed by six member states of the former Soviet Union (Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, and Armenia). Later, Belarus, Georgia, and Azerbaijan also joined. The organization was renamed Collective Security Treaty Organization (CSTO) in May 2002. Participating states see the guarantee of their security as based on Russian tactical nuclear weapons. In 1999, Azerbaijan, Georgia, and Uzbekistan did not extend their membership. Although Uzbekistan returned in 2005, it left again in 2012.

12 Made up of the initials of participating states.

presidents did. In spite of all this, since the 2000s, the Russian impact on Azeri foreign politics has proved to be increasingly limited (Cornell, 2011, p. 350).

## **THE ROLE OF IRAN AND TURKEY**

Possible bone of contention between Iran and Azerbaijan is basically of an economic nature and is related to the dispute on the delimitation of the Caspian Sea. Through bilateral agreements, in 1998 and 2002, the Caspian Sea was divided on a sectoral basis between Russia, Kazakhstan and Azerbaijan. Iran, which according to the sectoral principle would receive the smallest section of the sea, stood by the maintenance of a condominium regime (Mammadov, 2009, p. 65). What is at stake in the Azeri-Irani conflict is the control over the “Araz”, “Alov” and “Sharg” deposits in the seabed, which was close to leading to an open armed conflict between the two states. The conflict was eventually stalled by Turkey standing strongly by Azerbaijan and the US declaring “war on terrorism” after the September 11 attacks. Eventually, by signing in 2018 the Convention on the Legal Status of the Caspian Sea, the countries concerned put an end to the long-debated issue whether the Caspian was a sea or a lake. From this point, the United Nations Convention on Law of the Sea (UNCLOS) would apply, while the seabed was divided according to the sectoral principle. This implies that when signing the Convention, Iran made the greatest compromise, although the actual delimitation of the seabed resources according to nations still needs to be done (Putz, 2018).

In the long term, it is probably ethnic tensions that pose the main controversy between the two states. According to careful estimates, the Azeri minority in Iran numbers at least twenty to thirty million, i.e., over thirty percent of Irani society. Most analysts, however, emphasize that the ethnic consciousness of Azeris in Iran is not very strong, as they are deeply integrated into Irani society; even Ayatollah Khomeini’s father, born in Iran, was also of Azeri origin (Sadri – Entessar, 2009, p. 64). Nevertheless, with Azerbaijan’s independence, the Irani political leadership was increasingly worried about the strength-

ening of possible separatist tendencies. Among other factors, this is why although Iran declared its neutrality in the Karabakh War, it basically supported the Christian Armenians rather than the Shia Azeris. At present, it is difficult to assess the extent to which political fault lines would become ethnically framed in the event of systemic destabilization — whether triggered by military aggression or internal unrest — and to what degree Azerbaijani foreign policy might support or oppose potential separatist movements involving ethnic Azeris.

Traditionally, south of the Caucasus, the archenemy of Shia Iran, or historic Persia, was the Sunni Ottoman Empire. For independent Azerbaijan, Turkey was much more than just a strategically significant ally in a fairly hostile neighbourhood. The secular Republic of Turkey represented an attractive social and political model for Azerbaijan. In addition, because of their strong ethnic and linguistic ties, Azeris see Turks as their blood brothers. When describing Turkish-Azeri relations with the “one nation, two states” formula, Heydar Aliyev gave voice to this sentiment in a 1995 speech he gave in the Turkish Parliament. Despite the strong emotional identification of the Turkish public with the Azeri case, during the Armenian-Azeri War, Turkey was not in a position to provide military assistance to Azerbaijan in its fight with Armenia, the country that was in defence alliance with Russia (although the Turkish security guarantees for the autonomy of the Nakhchivan enclave probably contributed to the Armenian troops’ reluctance to attack Nakhchivan).

Turkey’s policy concerning independent Azerbaijan can be summarized as follows: firstly, supporting Azerbaijan in maintaining its independence and restoring its territorial integrity over Karabakh; secondly, diminishing as much as possible Russian influence over Azerbaijan and the South Caucasus region; thirdly, taking a share in the Azerbaijani oil sector and exporting via Turkey as much of the Azeri oil as possible; fourthly, keeping a friendly government in power (even if it is not by all means pan-Turkish nationalistic) (Cornell, 2011, p. 387). This political solidarity was coupled with considerable military support. “The Strategic Partnership and Mutual Assistance Agreement” concluded by Ankara and Baku in 2010 stipulates that the signatories will help each other ‘by all possible means’ in the event of ‘aggression’

by a third party (Isachenko, 2020). This is given special significance by the fact that in the 2010s Turkey became a globally outstanding arms manufacturer, especially in warfare with drones (their production and export), entering the league of the United States and Israel (Hofman, 2020). The Turkish Baryraktar TB2 (meaning: flag-bearer) drones, first made for Khatar in 2012, were effectively used in the Syrian and Libyan civil wars, and later in the Second Nagorno-Karabakh War (Kinik & Celik, 2021, p. 182).

### **AZERI REVENGE – THE SECOND NAGORNO-KARABAKH WAR**

In retrospect, it seems that, for Armenians, the beginning of the Karabakh endgame was in 2018. This is the year when the Karabakh clan that had ruled the country for two decades failed, and the ‘velvet revolution’ in Yerevan placed the West-leaning Nikol Pashinyan into the prime minister’s seat. Russia, whose relations with Azerbaijan had been fast deteriorating from the 2000s, was deeply irritated by the colour revolution in Armenia, the country they thought was a Russian ally. Thus, Putin’s regime stopped rhetorically supporting the Armenian side and, in addition, called on Armenia to withdraw its forces from the occupied territories outside Karabakh, such as Lachin, Fizuli, Agdam, and others (Ergun & Valiyev, 2020). The international consternation did not favour Armenia in its power vacuum, as it had lost Russia’s political backing, while western powers, primarily the USA, did not hasten to act. Both NATO and the EU declared their neutrality in the Karabakh conflict. Only France, which has a considerable Armenian diaspora, was ready to offer valuable help to the small state in the Caucasus suffering from its continental isolation. Armenians could not hope to receive political support from the UN either. International law clearly prioritized the protection of Azerbaijan’s territorial integrity as opposed to Karabakh Armenians’ separatist ambitions (Kinik & Celik, 2021, p. 175).

Figure 1. Karabakh before the 2020 Second Nagorno-Karabakh War



Source: Azimov, 2020

As far as regional middle-sized powers are concerned, although the Islamic Republic of Iran was probably worried because some seventy percent of Azeri arms imports came from Israel (Wezeman et al., 2021), because of the potential destabilization of its northern, Azeri-inhabited regions, members of the Shia theocracy were highly reluctant to get repeatedly involved in the Karabakh conflict (Kinik & Celik, 2021, p. 175). In contrast, Turkey was keen to stand by the Turks' brother nation in the attack in September 2020 (Middle East Monitor, 2020).

In the Second Karabakh War, which lasted for a mere 44 days, Turkish drones played a decisive role in Azerbaijan's offensive and contributed to Azeri victory. The Turkish Bayraktar drones, or more specifically the artillery and ballistic missiles based on the identification and targeting data provided by the drones, destroyed some 40% of the Armenian ground forces, primarily their air defence and armoured vehicles (Kinik & Celik, 2021, p. 183). President Ilhem Aliyev of Azerbaijan also acknowledged the outstanding properties of Turkish drones, stressing that they "reveal Turkey's power and also

strengthen Azerbaijan”. In addition, he underlined that the Azeri army is trying to learn from the capabilities of the Turkish army, with special regard to drone technology (EurAsian Times, 2020). Turkey first supplied drones to Azerbaijan in 2020; since then, it has clearly been Azerbaijan’s ambition to manufacture them itself (Kinik & Celik, 2021, p. 180).

*Figure 2. Karabakh in 2020–2023  
after the Second Nagorno-Karabakh War*



*Source: CNN, 2023*

The Azeri offensive supported by Bayraktar drones was an impressive military breakthrough. The temporary trilateral ceasefire agreement, eventually concluded with Russian mediation on 10 November 2020, returned to Azerbaijan the seven occupied regions around Karabakh, among them the strategically important fortress of Shusha (Shushi in Armenian) that guards the city of Stepanakert, the heart and capital of the Karabakh Valley. Its occupation had been a particularly great military victory for the Armenian side in the First

Nagorno-Karabakh War. At this point, Nagorno-Karabakh stayed under Armenian control, but it was only connected to the Armenian motherland by the five-kilometre wide Lachin Corridor, which two thousand Russian peacekeepers were monitoring (Broers, 2020). The ceasefire following the Second Nagorno-Karabakh War seemingly and temporarily appreciated further the value of Russian positions in the South Caucasus region. Within the Minsk Group, the western powers basically stayed silent. Russian “peacekeepers” were tasked (by the Armenian and Azeri parties jointly) with guarding for five years the formerly Armenian-controlled Lachin Corridor.

Neither of the warring parties could be fully satisfied with the agreement. The Azeris felt that despite their overwhelming military superiority, they had not accomplished all they wanted, as Karabakh itself was not returned to Azeri sovereignty. On the other hand, the war did not change the stance of Nikol Pashinyan’s Armenian leadership either. Despite the defeat, Armenia did not see the return of a Russian-friendly political leadership. In addition, with the spectacular Russian fiasco of the invasion of Ukraine, President Putin inflated off the increased prestige and trust capital associated with the position of Russia as a superpower (which it had successfully used in the course of the Kazakhstan Collective Security Treaty Organization intervention in January 2020)<sup>13</sup> (Droin et al., 2023).

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13 In January 2022, riots broke out because of the abolition of the price ceiling of liquid petroleum gas (LPG or LP gas) and the sudden soar in its price. Behind the violent scenes, there were hints at the rivalry between former President Nazarbayev’s clan and their successor. Only by inviting in CSTO “peacekeeping” troops could President Kassym-Jomart Tokayev consolidate his power. *Kazakhstan’s interference meant using in a critical situation paragraph 4 of the CSTO Charter, after Russia had denied similar interventions at least twice: from Kyrgyzstan in 2010, and from Armenia in 2021* (Kucera, 2022). With the successful operation which, despite more sceptical analyses, was followed by a quick withdrawal of forces, CSTO probably arrived at its zenith (RFE/RL, 2022).

## **THE THIRD NAGORNO-KARABAKH WAR – ONE POST-SOVIET CONFLICT ZONE FEWER**

As it became clear that the Russian aggressor's full military capacity was permanently tied down by the "special operation" in Ukraine, Azerbaijan launched a nearly ten-month long blockade of Karabakh under the pretext of environmental (!) protection. During the blockade, the Azeri troops closed down the Lachin Corridor, which was the transport route for food, medicine, and fuel from Yerevan. As a result, the 120 thousand inhabitants of the region suffered a serious shortage of basic foodstuffs, medicine, and even the water and electricity supply was disrupted. According to residents in Baku, they "starve them into submission so that, if and when the road reopens, they leave. It is, they say, a slow-motion genocide, with hunger used as a classic weapon." (Harding, 2023). In fact, the days of the Karabakh enclave were numbered.

On 19 September 2023, Azerbaijan launched a thoroughly prepared attack against Stepanakert. After less than 24 hours of resistance, the separatist authorities gave up (CNN, 2023). Following the "one-day war", that demanded some 200, almost exclusively Armenian casualties, Azeri victory was complete. The entire Karabakh was returned to Azeri sovereignty. Over the subsequent weeks, the large majority of the 120 thousand ethnically Armenian residents of the Nagorno-Karabakh Region left for Armenia (Reevell, 2023). Most Armenian politicians, including the west-leaning President Pashinyan, claimed ethnic cleansing, which Russian peacekeepers watched, this time, with their arms at their feet. Azeri troops pushing into Karabakh went as far as to kill a few peacekeepers, which should not have happened if Russia had not suffered such loss of prestige in their humiliating military failure in Ukraine (Droin et al., 2023). In fact, following the one-day war, in February 2024, Pashinyan announced the suspension of his country's membership in the Collective Security Treaty Organization (Reuters, 2024).

The Third Nagorno-Karabakh War did not receive much international attention. Western countries, with the USA and France among them, expressed their concerns and called on Azerbaijan to protect the rights

of Armenians. The Biden Administration sent the high-ranking leader of the US Agency for International Development (USAID) Samantha Power to the region and announced a humanitarian aid of 11.4 million dollars (Reewell, 2023).

## CONCLUSIONS

The Nagorno-Karabakh wars in 2020 and 2023 gave dynamism to a conflict that for some three decades had been thought to be “frozen”. It seems that Azerbaijan, supported by international law, managed to achieve a conclusive victory over the Armenian separatists. In the successful Azeri revenge, Turkish military technology had a key role. While Russia’s prestige has been shattered, and Iran’s influence is also dwindling, the regional power balance in the South Caucasus is clearly tipped in favour of the Azeri-Turkish tandem. At this point, the big question is whether Azerbaijan is content with its victory. According to the latest news, Armenia is allowing its neighbour to take possession of four more settlements (CivilNet, 2024), while Azerbaijan is trying to capture the Zangezur Corridor next to Iran, which would ensure direct access to the Nakhchivan enclave, and thus indirectly to Turkey (OC Media, 2024). In another attack against Armenia, international law would not be on the side of Azerbaijan. It is an open question whether, while it has eliminated a post-Soviet crisis zone, the 2023 Third Nagorno-Karabakh War is creating a new one at the same time.

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## CENTRAL EUROPE BY CLAUDIO MAGRIS

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### INTRODUCTION

When defining the Central European macro-region, one may also apply the criterion of strong internal ties not only of a political but also of a cultural nature. This is also affirmed by the work of the Italian literary historian, writer, and translator Claudio Magris (born 1939). He served as a professor of modern German literature at the University of Trieste and the University of Turin from 1978. He is the recipient of various awards and honours, including honorary doctorates from numerous universities around the world. He has also received several literary prizes, such as the Best Foreign Book Award in France (1990; The Prix du Meilleur Livre Étranger), the Erasmus Prize (2001), the Austrian State Prize for European Literature (2005; Österreichischer Staatspreis für Europäische Literatur), the Walter Hallstein Prize (2008), and the Western German Book Wholesaler Award (2009). His essays and feuilletons have been published not only in the Italian newspaper *Corriere della Sera* but also in various other European magazines and newspapers. In addition to the aforementioned work, he has dedicated other studies to the region of Central Europe, including: *Far From Where?: Joseph Roth and East European Jewish Tradition* (*Lontano da holubica Joseph Roth e la tradizione ebraico-orientale*, 1971),

*Danube* (*Danubio*, 1986), *Microcosms* (*Microcosmi*, 1997), *Utopia and Disillusionment* (*Utopia e disincanto*, 1999), *To Have Been* (*Esser gia Stati*, 2001), *Endless Journey* (*L'Infinity Viaggiare*, 2005), *History – More Than Just Ethics, Politics and Secularization* (*La Storia bez è finita etike, politica, laicità*, 2006), *Alphabet* (*Alfabeti*, 2008). He is also the author of essays on Henrik Ibsen, Robert Musil, Hermann Hesse, and Jorge Luis Borges. His works have been translated into numerous languages.

Magris has contributed through his studies and writings to the development of Central European cultural awareness—he “*helped effectively ‘transform’ Central Europe into a space of culture and literature*”<sup>14</sup> (Trávníček, 2009, p. 272). He attracted attention with his debut *The Habsburg Myth in Modern Austrian Literature* (*Il mito absburgico nella letteratura Austriaca moderna*, 1963), in which he highlights, against the backdrop of socio-historical conditions, the genesis and transformations of the literary portrayal of the Habsburg myth in Austrian literature. The inspirational impact of Magris’s work is also reflected in Alois Woldan’s study *Mit Austrii w literaturze polskiej* (*The Austrian Myth in Polish Literature*). Woldan explains the presence of Habsburg themes in Polish literature through two main factors: firstly, the fact that Galicia, following the partitions of Poland, was part of Austria until the end of World War I; and secondly, the region’s compensatory function after World War II up to 1989, during which the Habsburg past appeared more favourable than the socialist present<sup>15</sup>.

Equally remarkable is his travelogue *Danube* (*Danubio*), which has been translated into several languages and was published in Czech translation in 1992 and 2010. In *Danube*, Claudio Magris constructs what he terms “*a mental picture of Central Europe*”, emphasizing the region’s uniqueness “*as the cultural heart and cradle of tolerance between East and West, and Christendom and Islam*” (Gügold, 2007–2008, p. 210). The point of departure for grasping the essence of Central Europe is found in the works of European writers, philosophers, musicians, painters, and political figures. In this sense, *Danube* emerges as

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14 Since we based our work on the original Slovak texts or on translations of publications into Slovak, the authors of the English translations are the authors of this contribution.

15. See: Woldan, 1996, [online].

a kind of cultural constellation—indeed, “*a comprehensive textbook on the history of culture and literature of the peoples residing in the Upper and Lower Danube countries*” (Dzikovska, 2023, p. 57). The central focus of the work is thus not the literal, physical image of the river with its natural and geographical features—although Magris does occasionally depict elements such as the water’s colour, birdlife, and the vessels navigating its currents. Rather, the prevailing emotional tone is one of melancholy for a lost past. The poetic and reflective nature of the narrative mirrors the very essence of the river itself, which “*flows, breaks, eludes the grasps, and the history of the peoples residing on its illustrious banks follows a similar path*” (Dzikovska, 2023, p. 58). Moreover, the text reveals a pronounced influence of cinematic techniques: deliberate scene transitions, gradual fade-outs, slow-motion sequences, close-ups, medium wide shots, panoramic views, and horizontal framing (Tsuda, 2015, p. 343). These serve to convey Magris’s personal geographic imagination and his conceptual organization of space.

The Danube, a river of many faces, often becomes a symbolic substitute for Central Europe. M. Ormos justifies the appropriateness of this symbol by pointing to its changeability, which is characteristic of both the Danube and Central Europe (Ormos, 2007, p. 10). It also becomes a “*mirror of the geography, history, and culture of Central Europe*” for the Italian Germanist, who gave this title to one of his books. For him, the Danube becomes a guide in his reflection on the history and culture of the Central European countries through which it flows—perhaps also because it is “*a symbol of unity, of the cohesion of the Danubian nations*” (Žilka, 2015, p. 97). It is a kind of “*sentimental journey*” through Central Europe, which the author himself considers to be “*a book of Danubian culture*” (Magris, 2001, p. 14). His narrative takes the form of a travelogue, moving from place to place—from the eastern slopes of the Black Forest to the Black Sea—filling his text with epic stories, facts, and curiosities from the countries and cities along the river’s course, which becomes “*ever greater and more powerful, and finally throws itself into the ocean ‘after having enriched and fertilized the happy land it watered’*” (Magris, 2010, p. 36). The Danube, which cuts through “*subtle, invisible walls, layers of different, ever-present realities*” (Magris, 2010, p. 272), thus symbolizes fertile creative activity. Much like the

Jordan River in the New Testament, which served as the setting for important religious events (Lurker, 1999, p. 227), in the work of C. Magris, the Danube also becomes a vital witness to the turbulent history of Central Europe—a history of constant change and movement, a crossroads of past, present, and future (Magris, 2010, p. 303). The layering of time, however, hinders the possibility of fully grasping the Danubian space. The Danube “has no concept of sentences and language, which divide and fragment the unity of what is seen” (Magris, 2010, p. 303); it is “a path of encounter between East and West, ... bringing Greece to Germany and Europe, morning and rebirth to the evening land” (Magris, 2010, p. 302). Magris abstracts the fundamental pillars of Central European culture<sup>16</sup> in an unusual way and draws attention to curiosities from the region that illustrate not only its cultural richness but also the enduring presence of ancient cultural heritage. The panorama of the world that unfolds before us is the result not only of Magris’s fiction but also of a self-reflection on the world that he places at the centre of his vision. The central thesis, the phenomenon of Central Europe, also leads the author to reflections on the relationship between Central European identity and Germanness, the German perspective. “The Germans, as descendants of the ancient Dorians, were to become the Greeks of the new Europe, to give it a new, universally human culture, just as Hellas did for the ancient world” (Magris, 2010, p. 107). C. Magris illustrates this symbiosis of Germany and Greece with the example of the Walhalla memorial—a neoclassical monument honouring notable German figures—which strongly evokes the image of the Athenian Parthenon (Magris, 2010, pp. 106–107). Germany based its utopian idea of creating a great empire on the past; however, “the Holy Roman Empire was not a universal empire (...) it did not represent a *res publica Christiana*, nor did it coincide with Western Christianity (Julius Ficker); it did not claim the right (...) to universal domination” (Magris, 2010, pp.

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16 Ján Gallik, in his study entitled *The Aspect of Central European Unity and Diversity*, pointed out that “many aspects of (central) European unity and diversity brought about by the present force us to return, for example through literary works, to the first half of the 20th century and subsequently to the second, because these periods, with the many revolutionary events that took place in them, also have a significant impact on current European and global events” (Gallik, 2024, p. 123).

110–111). As C. Magris notes, the ambition of the great German monarchs was to create a strong German monarchy, a unified state—not to dominate the world. It was only historical circumstances and the loss of an influential position that transformed the original imperial idea into a compensatory tool of German politics, masking a “*void or crisis of power*” (Magris, 2010, p. 111). He evokes the imperial idea on his journey along the Danube through a prosaic stop in the Bavarian “Romanesque-Gothic, city of a hundred towers”—Regensburg, or Ratisbon—located in the “heart” of the Holy Roman Empire, at the northernmost bend of the Danube, where “layers of history from many centuries are concentrated in every stone ornament” (Magris, 2010, p. 109).

In a condensed form, he captures its history (such as the presence of Celtic settlements, the beginnings of German settlement, etc.), drawing attention to traditions, significant historical monuments that “testify to the majesty of the past, to a glory that can only be remembered” (Magris, 2010, p. 109), as well as to notable figures who lived or worked in the city—such as the historian Ch. G. Gumpenzheimer (1776–1841), Juan d’Austria (1547–1578, the son of Emperor Charles V and Barbara Blomberg), the mathematician and astronomer J. Kepler (1571–1630), and the German theologian S. Ch. Donauer (1593–1655). Thus, in Magris’s depiction of the city, D. Hodrová’s observation holds true—that stone objects in the “urban text” become sites of memory, of story (Hodrová, 2006, p. 164). However, rather than being struck by the “narrative potential” of architecture, the reader is more likely to be surprised by a certain disproportionality (for instance, the age and function of the Stone Bridge—Steinerne Brücke—is mentioned only in passing) and by the emphasis on seemingly less important details, even though these reflect the author’s broad intellectual scope. In C. Magris’s work, a Central European perspective on space is revealed, in which seemingly insignificant events acquire an existential dimension.

Based on the imperial idea of Germany, Magris emphasizes that it is precisely because of its hegemonic ambitions that Germany—rather than contributing culturally to the development of European civilization or being “associated with progress”—comes to evoke one of the

darker sides of Central European history.<sup>17</sup> “Nazism is an unforgettable example of how the German presence in Central Europe went astray. Nevertheless, the German presence in Central Europe represented a major chapter in history, and its end marked a tremendous tragedy—one that Nazism, which is responsible for its decline and defeat, does not allow us to forget. To come to terms with Europe today means coming to terms with one’s relationship to Germany” (Magris, 2010, p. 30). And although Nazism “represents the apogee, the unsurpassed peak of wickedness, the closest link (...) between social order and cruelty” (Magris, 2010, pp. 96–97), C. Magris considers excessive criticism of German Nazism to be a strategy to “mask” other consequences of “barbarism” and the dehumanization of the world (Magris, 2010, p. 96).

Unlike the Germans—although Austria was and is “a part of the German soul” (Magris, 2010, p. 29)—Magris seeks to capture the differences between “Germanness” and “Austrianness”, which are exemplified by the 1938 Anschluss, described as “a tragic distortion, a caricature of this symbiosis” (Magris, 2010, p. 28). Austrians, even if “people without qualities, landlocked Odysseuses of libraries” (Magris, 2010, p. 28), are characterized by loyalty to the royal dynasty and homeland, a sense of order, a striving to maintain balance in Central Europe<sup>18</sup>, as well as the shaping of national consciousness. Austria emerges as a country that “has many such places where one feels at home” (Magris, 2010, p. 188), but also one that “sheltered under its wings a multitude of nearly equally diverse tribes and civilizations” (Magris, 2010, p. 193). This idyllic impression of Austria<sup>19</sup> and its culture<sup>20</sup>—enhanced by the

17 C. Magris also takes a critical stance toward the politics of the Christian Social Union in Bavaria. One can only assume that this is driven by one aspect of their policy—namely, the portrayal of Germans, following the post-war expulsion from Central European countries, as victims of the World War II (Marušiak, 2011, p. 77). For him, their values are embodied by Vilshofen, “a small mirror of the world’s leveling” (Magris, 2010, p. 125).

18 An example of this can be found in the section dedicated to Raimund Montecucoli (1609–1680). See Magris, 2010, pp. 147–152.

19 Although he later expands on this: “That unknown homeland, where life is lived on credit, is Austria, but it is also a life that is pleasant and—on the edge of nothingness—happy” (Magris, 2010, p. 221).

20 Austrian culture reflects that Central European ambivalence: “it sought to achieve perfect wholeness, a harmonious, completed unity of life, yet it pointed

characterization of Vienna and its liberal philosophy<sup>21</sup>—is disrupted solely by the history of the 20th century, which “casts a shadow into the present”. An example is Mauthausen, with the existence of a concentration camp, “a symbol of the destruction of the person – of individuality”, where “the superfluity of man, his ruin, his extinction can be felt almost physically”, or where “one feels like just one among that immense number crushed by the world spirit, which clearly shows signs of disturbed psychological balance—like one of those serial numbers that were branded into the forearms of prisoners in the appropriate office of the concentration camp” (Magris, 2010, pp. 155–156). But Austria is marked by antinomies. Its cultural level contrasts with moral decadence (pretense, hypocrisy, intrigue, aggressiveness, brutality), which turned Vienna—the “Babylon of languages”<sup>22</sup>—into “the navel of history, a testing ground for the end of the world” (Magris, 2010, p. 189). Magris shaped an unflattering image of Vienna, a place where things collapse, where universality and systems of values lose their significance (Magris, 2010, p. 203). For him, Austrianness—but also Central Europeanness—symbolizes “the art of escape, vagrancy, ... a stop in anticipation of a homeland that we (...) are constantly seeking, sense its presence, and will never know” (Magris, 2010, p. 221).

The search for the meaning of life and existential feelings of alienation—similarly emphasized in relation to Austria—also appear in the depiction of Slovakia through a topo-analysis of Bratislava. Its present is “woven from clashes” (Magris, 2010, p. 237) of German, Hungarian, and Slovak elements. Magris no longer focuses on other

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to the links that are always missing to close the circle, to the empty space between things, between actions and feelings, to the cracks that every person and every society carries within” (Magris, 2010, p. 182).

21 “Live and let live” (Magris, 2010, p. 206), however, can easily degenerate into the indifference of “die and let die” (Magris, 2010, p. 206). As is evident, C. Magris portrays the city as both a network and a unity of opposites—a crossroads where stories intersect and layer upon each other, a place that can become a symbol of both national and personal life, with its experience expressing the perspectives of perception.

22 The linguistic diversity is outlined by the number of communicative languages: Hebrew, Greek, Latin, German, French, Turkish, Spanish, Czech, Slovene, Italian, Hungarian, Dutch, Syriac, Croatian, Serbian, Polish, and Chaldean (Magris, 2010, p. 189).

Slovak towns through which the Danube flows, although in the section dedicated to Pannonia, he briefly mentions the existence of Komárno in Czechoslovakia in connection with Komárom (Magris, 2010, p. 276). However, the description of the High Tatras (Magris, 2010, pp. 252–253) does not align with the author’s strategy. Slovakia is placed among the small nations that “*for a long time remain a patient and inconspicuous layer, a humble and fertile land, waiting for centuries for the time of its blossoming*” (Magris, 2010, p. 237). Magris postulates the key determinants of its historical development (the language question, Hungarian–Slovak and Czech–Slovak relations), and a memory that “*preserves everything under a glass dome—open wounds as well as the passions that caused them*” (Magris, 2010, p. 236). The negative historical experience and the oppression endured—which, according to Magris, was Slovakia’s fate after 1867—can, as a result of a lingering sense of existential threat, lead to an emphasis on asserting one’s own identity even in times when it is no longer a necessity. The danger of such an attitude lies in the fact that the nation “*will lack nobility in its relationship to the world*” (Magris, 2010, p. 242). In his depiction, the myth of a thousand years of subjugation, of being a historical victim and of plebeian character, is interwoven with the myth of perceiving Bratislava as the center of Europe. Bratislava, through the lens of the present, appears to him as “*vibrant and joyful, ... a world full of life and vitality, not wistfully looking back to the past, but rather looking ahead to growth and the future*” (Magris, 2010, p. 244). He completes the historical context of Slovakia through selected figures from its cultural, literary, and scientific life, although—with the exception of J. A. Comenius—he devotes only minimal space to them.

The travelogue reveals Claudio Magris’s very positive attitude toward Hungary, in which the Danube “*strings cities together like pearls*” (Magris, 2010, p. 276). However, the picturesque image of the lowland region that engages all the senses stands in contrast to Hungarian literature, which, instead of glorifying the Kingdom of Hungary, “*reveals the misery and darkness of the Hungarian fate*” (Magris, 2010, p. 276). While Hungarian history certainly follows a sinusoidal pattern, the ingrained feelings of self-pity and disillusionment are, in his view,

unwarranted: “Hungary, squeezed between the Germanic, Slavic, and Romance worlds, was threatened by its neighbours but was not their vassal. It did endure Turkish domination and the defeat of many revolutions, but it was also a nation of oppressors that imposed its will on Slavs and Romanians. It was not a region forgotten by world history — it was a nation that created history” (Magris, 2010, p. 277). C. Magris, in discussing the mission of the Kingdom of Hungary<sup>23</sup>, does not deny the Hungarian contribution to the development of integration plans for the Danubian region (notably those of M. Wesselényi, I. Széchenyi, L. Kossuth, and A. Popovici).<sup>24</sup> His exploration of Pannonia’s cultural geography begins with a tour of Sopron, and his journey continues through Győr, Komárom, Esztergom, Vác, Szentendre, Budapest, Csepel, Kalocsa, Pécs, Szeged, and finally Mohács. Each of these places is unique in terms of cultural production, and yet “Budapest is the most beautiful city on the Danube; it has the same refined scenography as Vienna, but with a more robust essence and vitality” (Magris, 2010, p. 281). All these references reflect a deep knowledge of the most significant aspects of Hungary’s cultural history. Cultural aspects are also reflected in the characterization of cities: Győr (Rába) as a centre of the most radical ideas, Komárom as a symbol of Hungarian identity, Esztergom as a city of “bloody memories,” Renaissance and Baroque palaces, Szentendre as the so-called Danubian Montmartre, Csepel as the industrial and political centre of Hungary, Kalocsa as a city of embroidery and shirt-making, Pécs as a city of ancient monuments, wine, and the first university in Hungary, Szeged with its turbulent history, natural and historical catastrophes, and Mohács as a haunting museum that profoundly marks the fate of the nation.

Magris’s “Danubian Odyssey” continues through the Banat, “the heart of Pannonia and the old Habsburg Empire” (Magris, 2010, p. 316). He provides an overview of the structure and formation of its ethnic

23 In this, he refers to the Hungarian writer, politician, and publicist Zs. Kemény (1814–1875), who believed that Hungary’s task was to defend the multiethnic character of the Habsburg Empire, to distinguish between the German and Slavic elements, and not to allow one to gain dominance over the other (Magris, 2010, pp. 259–260).

24 These projects also stemmed from the policies of the Hungarian ruling class, which sought to preserve the unity of the Kingdom of Hungary.

composition, the peaceful coexistence and deep-rooted prejudices, its borderland status, the shifts of political regimes, and the possibilities for cultural and literary development, including literary works inspired by the landscape and its turbulent history. It is a space of both unity and diversity in a condensed form (Magris, 2010, p. 351). Magris draws an analogy between the former Yugoslavia and Austro-Hungarian politics, almost prophetically warning against the destructive influence of nationalism: *“The Yugoslav mosaic, like the Habsburg one, is today both admirable and fragile; it plays a relatively important role in international politics while also striving to slow down and eliminate internal disintegrative tendencies. Its stability is essential for maintaining balance in Europe, and its potential disintegration would have effects as devastating as the collapse of Austria-Hungary in the world of yesterday”* (Magris, 2010, p. 360).

The topographical representation of Bulgaria in the author’s account is shaped by its geographical position. Against the backdrop of its peripheral status, he highlights the national character of the Bulgarians, their hospitality, which is *“a celebratory lesson, a history, literature and civilization class”* (Magris, 2010, p. 365), as well as their local patriotism, which can be illustrated by the following example: *“Bulgaria does not so much celebrate the building of socialism as it does the national awakening or revival (...). Every battlefield and every episode is presented here with enthusiasm and down to the finest detail”* (Magris, 2010, p. 366). The Bulgarians “cling” to their history, as their existence and identity are closely tied to it. C. Magris reinforces the notion of a friendly world by reviving its history and reflecting on the origins of this nation, which forms the core of Slavic identity.<sup>25</sup> Even in Bulgaria’s fifth-largest city, Ruse, the author feels *“at home, in the familiar surroundings of solid and hardworking Central Europe (...); in its streets and squares, above its corners reminiscent of Vienna and Rijeka, there is the reassuring uniformity of the Danubian style”* (Magris, 2010, p. 382).

Part of his ethnographic description also includes the Romanian soul, marked by a melancholic idyll and a sense of resignation to fate. C. Magris thus points out the German-Austrian cultural influence even in the cities of Southeastern Europe along the Danube. This in-

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<sup>25</sup> See: Magris, 2010, pp. 374–375.

fluence is evident not only in the ethnic composition—for instance, in the Romanian part, “in some villages one can hear Swabian or Alemanic dialects, as if we were in Württemberg or the Black Forest” (Magris, 2010, p. 317)—but also in the mindset and literary production, as the author “in a state of immediate threat, experiences uprootedness, duality, and a crisis of identity” (Magris, 2010, p. 330), and more generally in the region’s development, as illustrated by the example of Budapest: “Budapest, in turn, imitates a transplanted Viennese urbanism (...). The splendor of Budapest is a partial compensation for a city that is losing its character, a city that is a mixture of gigantism and overblown flourishing, which corresponds to the hybrid union between Hungarian capital and the Habsburg eagle and is reflected in the historicist eclecticism of its architecture” (Magris, 2010, pp. 282–283).

For Magris, the metaphor of Europe is embodied by figures such as the Hungarian Lukács, with his “Hegelian attunement” (Magris, 2010, p. 296); the Croatian Miroslav Krleža, a writer of “encounters and clashes between Croats, Hungarians, Germans, and other peoples of the Danubian world” (Magris, 2010, p. 273), and a critic of Austro-Hungarian “totalitarianism”<sup>26</sup>; Elias Canetti, “a poet who taught loyalty and defiance in the face of the unacceptable humiliation of death” (Magris, 2010, p. 389); and Paul Celan, whose work “embodies an entire era of European poetry, which (...) speaks of shipwrecked dreams of redeeming the world and self-destructively depicts its own suffering” (Magris, 2010, p. 346), and who “experienced his inner torn self and the extermination of the Jews as absolute evil” (Magris, 2010, p. 347). The journey ends in the unique Danube Delta, where the great European river flows into the Black Sea near the Surina lighthouse.

## CONCLUSION

Magris’s expedition is an intimate rendering of space—a portrait of cities, landscapes, and Central Europe itself. Much like in Joyce’s *Ulysses*, the reader is confronted not only with an external perspective that “speaks with many voices” (Hodrová, 2006, p. 89), but also with

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<sup>26</sup> See: Magris, 2010, pp. 273–275.

an internal, personal viewpoint presented as an associative collage of memories, fragments of events, or stories. Both narratives “*flow in a stream of consciousness and emerge from it as an impenetrable tangle*” (Hodrová, 2006, p. 89). In line with Jan Assmann’s concept, this can be understood as *cultural memory*—a tool for shaping and reinforcing identity. However, the memory Magris reconstructs “*does not arise from the things themselves, from the genius loci of individual places, nor does it slumber in the buried layers of memories of individual witnesses but is quite literally inscribed into culture*” (Činátlová, 2010, p. 450). It calls for the recognition of everything that becomes part of this memory, without hierarchy and without erasing the distinction between center and periphery, thus creating a “*cement*” that binds all the Danubian fragments together (Činátlová, 2010, p. 450). In this sense—as Magris himself emphasizes—the journey through the Danubian space is also a kind of rescue mission, one that documents and collects what is at risk of disappearing or falling into oblivion (Magris, 2010, p. 280).

On the one hand, through his narrative, Magris conveys the idea that history follows a certain logic—one that, on a global scale, assigns each nation or region its place and mission. On the other hand, his perspective shapes the Danubian world into a kind of self-contained, though closely interconnected, realm whose cultural and political boundaries are defined by its identity. A key part of this identity is undoubtedly the frontier of the Roman Empire (*Limes Romanus*)—a shared cultural heritage.

It was formed by fortified points, legion camps, and watchtowers that enabled control over the territory.<sup>27</sup> However, the Romans also made use of natural boundaries—rivers, forests, and similar features.<sup>28</sup> “*This rampart, the remnants of which occasionally peek out between fields and hedgerows, speaks of the great era of the Roman Empire, of the unification and creation of the world at that time. The Limes shaped*

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27 Among the provinces that emerged along the middle course of the Danube, the province of Pannonia can be mentioned, with its legionary camps – Vindobona (Vienna, Austria), Carnuntum (Petronell, Austria), Brigetio (Komárom, Hungary), and Aquincum (Budapest, Hungary) (Schmidtová et al., 2011, p. 4).

28 The section of the Roman Empire’s border between the Danube and the Rhine is referred to as the Upper Germanic-Rhaetian Limes, and it was included in the UNESCO World Heritage List in 2005 (Schmidtová et al., 2011, p. 4).

*our history, our civilization, our Europe*" (Magris, 2010, p. 105). He reveals to us a cultural-historical portrait of the region—its ethnic diversity and multiculturalism—as well as a rejection of the dominance of one nation at the expense of others: "*The Danube is often surrounded by a symbolic aura of anti-German sentiment; it is a river along which various nations meet, clash, and mingle, whereas the Rhine is the mythical guardian of racial purity. It is the river of Vienna, Bratislava, Budapest, Belgrade, and Dacia—a ribbon that, much like Okeanos once encircled the Greek world, crosses and envelops Habsburg Austria, which myth and ideology turned into a symbol of a multinational and supranational koiné, an empire whose monarch addressed 'his peoples' and whose anthem was sung in eleven languages. The Danube is the German-Hungarian-Slavic-Romance-Jewish Central Europe, standing in sharp contrast to the Germanic Reich—it is a 'post-national' ecumene, a world 'beyond nations'...*" (Magris, 2010, p. 26).

C. Magris thus perceives Central Europe as a space of communication and interaction, full of contradictions, shifts in political systems, the "ideology of concessions", historical upheavals and returns. In his narrative, the cultural perspective takes precedence over the geographical and topographical description of places. He draws attention to the similarities not only in thought but also in the architecture of Central European cities, marked predominantly by the Baroque style. He highlights the abundance of ecclesiastical buildings (churches, monasteries), as well as the presence and distinctiveness of Baroque visual art—airy buildings, large freestanding sculptures, dramatically lit and deeply emotional paintings, ornate decoration, grandeur, irregular forms, and frequent religious themes, along with allegorical and mythological figures and scenes from everyday life. For example, Passau is described as a "city of water, and the baroque grandeur of its domes spreads over transience, over the flow and colourful variability of the waters and everything that is the secret inspiration of true baroque" (Magris, 2010, p. 128). He draws attention to the ornamentation of Austrian monasteries through places such as Sankt Florian and Melk (Magris, 2010, pp. 157–161); baroque plague columns in town squares are a characteristic feature of baroque architecture in Central Europe (Magris, 2010, p. 135). Even cemeteries—places where nature and art, past and present

intertwine—bear the marks of baroque, as is the case in Vienna (Magris, 2010, p. 196). In the Habsburg monarchy, this Baroque aesthetic above all represented the absolutist power of the ruler and the Church. For C. Magris, Central Europe symbolizes the “culture of the past”, a world reminiscent of J. Roth and R. Musil, a world that no longer exists, but serves as a sort of gateway to openness and creativity (Ormos, 2007, p. 9). The journey along the Danube is an excellent way to enrich oneself with personal experiences that can help strengthen one’s own identity. Although he strives for objectivity in his evaluation, due to his ahistorical approach, he sometimes constructs vague ideas. This stems from Magris’s own methodology. As noted by J. Pelán, C. Magris “*does not concern himself with the hierarchy of material because he knows that every fact, whether serious or trivial, is a sign of some truth*” (Pelán, 2007).

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