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COMPARATIVE ANALYSIS OF THE ECONOMIC DEVELOPMENT IN THE POST-SOCIALIST VISEGRAD AND SOUTH CAUCASIA

PhD Dissertation

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Abstract

There emerged a divergence in the economic performance of the post-socialist countries. The output decline has been less dramatic in the Central Eastern European (CEE) countries. Contrastingly, the drastic decrease in GDP was accompanied by macroeconomic and institutional chaos in Commonwealth Independent Countries (CIS), and they lost a significant part of their production capacities. In this thesis, I conduct a comparative analysis of the economic development in the Visegrad (V4) (from CEE) and South Caucasia (from CIS). I evaluate the economic growth in these regions in the frameworks of structural change and institutional development.

I use the Shift Share Analysis (SSA) method to measure the direct effect of the reallocation of labor across sectors on productivity growth in these regions. SSA finds that within-sector productivity is the main driver of economic growth in both regions. Poland and Georgia experienced the biggest reallocation effects. The manufacturing sector is the engine of within-sector productivity growth in V4 countries. The expansion of the modern business services sector produced a positive reallocation effect in all countries, Still, the lack of growth dynamism in the productivity of this sector undermined the positive reallocation effect in Hungary and Slovakia. Contraction of employment in agriculture played an important role in the positive reallocation effect in Poland among V4 countries. A slight contraction of employment in low-value agriculture in Azerbaijan and Georgia also produced a significant positive reallocation effect. FMOLS test shows that the manufacturing sector positively affects economic growth in both regions. The impact of business services on economic growth is positive in V4 but negative in South Caucasia.

I use the property rights institutions as a main proxy for the economic institutions. The early transition period has become determining for forming the property rights institutions in these regions. The transition occurred in a peaceful environment in V4 countries. At the same time, the prospect of EU integration enabled the formation of better property rights institutions. However, with institutional chaos and macroeconomic instability, South Caucasian countries were caught in military conflict. As a result, the emerging political regime could not protect the property rights of all economic subjects.

The econometric evaluation shows that the improvement in the protection of property rights contributes positively to economic growth in both regions.

I evaluate the effect of particular institutions: institutions of product market competition, labor market, innovation, and education on economic growth. Reform in competition policy has a positive impact on economic growth in V4, while its negative effect in South Caucasia can be explained by its incompleteness. Employment protection positively affects growth, which can be linked to its conduciveness to the accumulation of firm-specific skills. Informal employment negatively affects growth in V4, while its effect is positive in South Caucasia. The econometric evaluation shows that all three forms of innovation: innovation in production, technology, and R&D capacity have a positive effect on economic growth in both regions. However, development in the production capacity is still the driver of innovation in these regions. Higher education expanded in both regions in the post-socialist period. Skills of the educated workforce are utilized in the progressive sectors in V4 and, therefore, have a positive effect on economic growth. However, a significant part of the educated workforce is not employed in progressive sectors due to the smallness of these sectors in South Caucasia. As a result, the effect of education on economic growth is negative in South Caucasia.

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1. INTRODUCTION

1.1. Background of the study

Economic growth is the most powerful instrument for increasing people's living standards and reducing poverty. Lower living standards and higher poverty rates are concentrated mainly in countries with a long history of low rates of economic growth (Rodrik 2008).

For a long period in history, there were no considerable differences in economic growth and development among nations. However, the gap in the rate of economic growth started with the industrial revolution in the eighteenth century. Some nations in the Western World began to experience a visible acceleration of economic growth while nothing changed in the remaining parts of the world. Such ongoing differences in growth led to vast disparity in the level of income and living standards among nations. The nations in the economic periphery of the world attempted to reduce the gap with rich countries. The promotion of economic growth has defined the political agendas of developing countries since the beginning of the second half of the twentieth century. Overall, developing countries experienced economic growth of 2 percent between 1960 and 2010 (World Bank 2013), enabling them to alleviate social and poverty problems and improve the quality of life of their populations. However, the rate of development has been uneven among developing countries. Economic growth in East and South-East Asia has been faster and more continuous in the last six decades. It has enabled a reduction in the gap between the latter and richer countries, and some of them, such as South Korea, Taiwan, Singapore, and Hong Kong, have joined the club of rich countries. Latin American and Sub-Saharan African countries also enjoyed economic growth, but this came to a halt in the late 70s and early 80s, and they shifted to a lower growth rate, which did not allow them to reduce the gap with more advanced economies. Growth was also exhausted in the socialist world in the same period.

The questions "why are some countries richer than others?" and "how can developing countries achieve economic development?" have been dominant in the scientific study of economies, and have led to requests for solutions for overcoming the economic backwardness of developing countries. Neoclassic growth theories emphasized the

differing levels of factor accumulation as a cause of differences in income (Solow 1956; Cass 1965; Koopman 1965). The endogenous growth theories underlined that physical and human capital accumulation creates externalities that sustain steady-state growth (Romer 1986; Lucas 1988). Therefore, the accumulation of physical and human capital does not create a diminishing rate of growth. The second wave of endogenous growth theories endogenized technical progress as a positive effect of the accumulation of physical and human capital. But none of these theories could answer why the level of capital accumulation in developing countries is not similar to rich countries. The *structural change* theory and *institutional economics* try to suggest an answer to this question from their perspective.

The structural change theory claims that an economy consists of a modern and traditional sector (Lewis 1954). The modern sector has a higher capital intensity and capital accumulation capacity, higher productivity rate, higher R&D intensity, and rapid technological development capacities (Szirmai and Verspagen 2015; Timmer, de Vries, and de Vries 2015; Rodrik 2016). While the opposite is characteristic of the traditional sector. Developing countries have a larger traditional and smaller modern sector. Therefore, they can't achieve capital accumulation, innovation, and growth. The shift of labor from the traditional to the modern sector is a way of sustaining growth and development in developing countries. The countries in the developing world which achieved a considerable convergence (China, Malaysia) and catch-up (South Korea, Taiwan) with the developed countries are those which experienced a big structural change (Avopa and Szirmai 2021).

The Neoclassic growth theories propose that differences in physical and human capital accumulation are behind the differing economic outcomes across the nations. But why do different nations have different preferences and propensity to invest in physical and human capital? This is the question Institutional Economics tries to answer. Differences in the institutional settings across the nations produce different incentives to invest. The division of labor and specialization results in a fall in production costs. But it also necessitates alienated and over long-distance human interactions, which creates room for opportunistic behavior and increases the transaction cost among the economic subjects. Therefore, it is necessary to have effective institutions to reduce transaction costs. If

effective institutions do not exist, transaction costs will be higher and discourage investment in reducing the production cost, resulting in lower growth (North 1992). Institutions that provide the protection of property rights to a broader part of society can induce economic growth (Acemoglu, Johnson, and Robinson 2005). Protection of property rights guarantees to reap the benefits of investment; therefore, its provision to broader society encourages more investment which is essential for growth. Protection of property rights is provided to only a small fraction of the society in developing countries. Therefore, the society's full potential is not utilized, which creates a lower growth regime in these countries (ibid).

Economic growth had also been the main target of the socialist world. In the initial decades of communism, they achieved a high rate of economic development via industrialization and urbanization by administrative methods. However, those methods could not provide further growth due to the inherited inefficiency of the socialist system, and the long-lasting low-growth regime persisted from the 1970s until the collapse of the socialist world (Kornai 1992). As these countries refused the socialist system and decided to move to the market economy, the main question became how they could converge with the rich countries. Early studies mentioned market reforms as a main factor that could reduce the inefficiencies in the existing production system and facilitate the rise of new activities (Pelipas and Chubrik 2008). Another line of the research considered the development of institutions to protect property rights as a decisive factor for economic growth. Regarding the level of institutional development in post-socialist countries, a dividing line emerged between CEE and CIS. The CEE countries could achieve higher institutional development, motivating foreign and domestic investors. However, the institutional trap would impede the higher economic growth rate in the CIS countries (Anders 2013). I compare the economic development in V4 and South Caucasia in the context of the CEE-CIS duality. The effect of the transition shock on the South Caucasian economies has been devastating. Their output loss due to the transition shock was huge, and they fell from the middle-income level to nearly the poverty level at 1000 USD per capita (2015 constant USD). Compared to South Caucasia, the output loss at the beginning of the transition can be called "mild" in the V4 countries, and the transitional recession lasted a shorter time than in South Caucasia. The manufacturing sector has been the

primary driver of economic growth following the transition shock in the V4 countries, and business services soon joined in. However, the South Caucasian countries lost their industrial production, which had been built during the socialist period, and the export of natural resources, worker remittances, and ease of access to foreign capital drove their rapid economic growth after the transition shock. While doing my master's study at Corvinus University in Budapest, I had a chance to know the economy of Eastern Europe, especially Hungary. By comparing this region with my own country, Azerbaijan, I saw that the V4 region is completely ahead of South Caucasia, including my country - Azerbaijan in many aspects of living standards. These differences motivated me to know the reasons for the different economic outcomes between the two regions and what South Caucasians can do to achieve today`s level of economic development in the V4 countries. In the pursuit of this curiosity, I decided to understand the reasons behind the differences in economic performance between the two regions in the context of this dissertation.

1.2. Research Gap

Grogan and Moers 2001; Efendic, Pugh, and Adnett (2010), and Hartwell (2013) evaluate the effect of the institutions on economic growth in the transition economies, but they don't give a comparative analysis. There are studies that give a comparative analysis of the institutions and growth in CEE and CIS duality (Brunetti, Kisunko, and Weder 1997; Campos 2000; Mickiewicz 2005; Redek and Susjan 2005; Anders 2013). Significant changes happened in the last decade, but there is no comparative analysis of the effect of the institutions on economic growth in post-socialist geography entailing the last decade. This study tries to fill this gap by giving a comparative analysis of V4 and South Caucasia.

The CEE and CIS countries have institutional diversity and differing economic structures. V4, Baltics, Western Balkans, Romania-Bulgaria in CEE, Eastern CIS (Russia, Belarus, Ukraine), South Caucasia, and Central Asia in the CIS have their distinctiveness. However, there is a limited number of comparative studies to touch on such diversity (Farkas 2011; Bohle and Greskovitsz 2012; Farkas 2016; Farkas 2017). Nevertheless, these studies cover diversity only within the CEE, and CIS remains unlearned. This thesis attempts to fill the gap by covering diversity within CIS (by studying South Caucasia) and compares one region (V4) from CEE with one region (South Caucasia) in the CIS.

The institutional analysis of the economic development in transition economies mainly investigated the effect of property rights institutions on economic growth. However, except a few post-socialist Central Asian countries, all post-socialist countries are middle and high-income countries. Therefore, property rights institutions cannot alone explain economic growth (Lee and Kim 2009). At this income level, particular institutions become a factor to affect economic growth. Therefore, in addition to the property rights institutions, this thesis investigates the effect of institutions such as innovation, labor markets, product market competition, and education on economic growth.

There are a few studies to evaluate the effect of structural change on economic growth in transition economies (Havlik 2005; 2014; Alam 2008; Kuusk, Staehr, and Verblane 2016). However, these studies focus mainly on the CEE countries, and the CIS, including South Caucasia, needs to be addressed. Additionally, although these studies can measure the overall effect of structural change on productivity growth, their methodologies do not allow an accurate evaluation of the contribution of each sector to productivity. I use a more sophisticated method for overcoming that deficiency.

1.3 Statement of Research Problem

After the transition shock was over in the 1990s, a higher economic growth rate started in V4 and South Caucasia. However, the higher rate of economic growth has come to a halt in both regions since the 2008/9 financial crisis. Regarding the lower rate of economic growth, catch-up with rich countries does not seem on the horizon. Part of the slow growth rate, especially in the V4 countries, could be linked to the slowdown of growth in the EU, but another part is related to the inability of the current growth strategies to provide further growth in these regions. The economic growth of the V4 countries relied on attracting the FDIs through cost competitiveness of labor, mainly in the middle-value-added tasks in the manufacturing sector. Still, they exhausted the potential of this type of growth strategy (Kalotay 2017). Favorable terms of trade, ease of access to international finance, oil (Azerbaijan) and metal exports, and worker remittances (Armenia and Georgia) fueled the high-rate economic growth in South Caucasia. However, the growth model based on the export of raw materials and labor exhausted its growth potential. In these regards, it

is worth investigating the potential direction of the economic development in these regions to converge them to the developed countries.

In the background of the EU integration, V4 countries achieved a considerable level of development of property rights institutions, enabling them to host a significant amount of private foreign and domestic investment. However, there is a recent tendency for deterioration of the institutional environment in Poland and Hungary which can hurt the investment climate (Wyrzykowski 2019, Szanyi 2019; 2022). The South Caucasian countries evolved from the institutional chaos of the early transition and experienced a slight development in the property rights institutions. However, institutionalized protection of property rights is still poor, which can discourage private investment. In addition to the property rights institutions, labor markets, innovation, product market competition, and education institutions are crucial for economic growth. Therefore, it is necessary to evaluate the effect of these institutions on the economic growth in V4 and South Caucasia.

The history of catching up of the laggard economies with the rich countries shows that they did more than just improve the mastering of the existing low value-added production. They changed their economies' structure by creating and expanding high-value-added production. Therefore, it is also necessary for the V4 and South Caucasian countries to upgrade their economies' value structure to achieve convergence with the developed countries.

The structural change focuses on channeling the resource to the high value-added progressive sectors while institutional development would enable the development of capabilities across all sectors, and both are essential for economic growth. Rodrik, Macmillan, and Sepulveda (2017) introduce a unifying framework for *structural transformation* and *fundamentals* (institutions). This research follows the same approach and conduct a comparative analysis of the economic growth in V4 and South Caucasia within a *unifying framework* of structural change and institutions.

1.4. Research Aims and Objectives

This thesis aims to investigate the effect of institutional and structural factors on economic growth in post-socialist V4 and South Caucasia. Specifically, this study addresses the following objectives:

1. To examine the structural change in the economies of these regions in the post-socialist period and evaluate its effect on economic growth.
2. To analyze the development of the market system in these regions in the post-socialist period.
3. To investigate the development of property rights institutions and evaluate its effect on economic growth.
4. To examine the institutions of product market regulation, labor markets, innovation, and education and measure their effect on economic growth.
5. To analyze the relationship between institutional change and structural change in the V4 and South Caucasia.
6. To suggest policy recommendations based on the findings of the study.

1.5. Research Questions

This study addresses the following questions for achieving the aims and objectives of the thesis:

1. What is the effect of the sectoral reallocation of labor on productivity in these regions? How does the expansion of the modern sectors contribute to overall economic growth?
2. What is the impact of property rights institutions on economic growth?
3. What is the role of the institutions of product market regulation, labor markets, innovation, and education on economic growth?
4. How did institutional development and structural change formulate each other in V4 and South Caucasia?

1.6. Research Hypothesis

According to the stated research questions, the following testable hypothesis is formulated.

On structural change and economic growth:

H1: The reallocation of labor from the low value-added sectors to the higher value-added sectors plays an important role in the productivity growth in V4 and South Caucasia

H2A: Expansion of the share of manufacturing production has a positive effect on economic growth in these regions.

H2B: Expansion of the share of the business service production has a positive effect on economic growth in these regions.

On the institutions and economic growth, property rights institutions

H3: Strengthening the protection of property rights stimulates economic growth.

On the institutions and economic growth, product market regulation institutions

H4A: The competitive product markets have a positive effect on economic growth.

On the institutions and economic growth, Labor Market Institutions

H4B1: Stricter regulation of employment relations impedes economic growth.

H4B2: Higher rate of informal employment contributes negatively to the economic growth.

On the institutions and economic growth, institutions of innovation

H4C1: Innovation in the form of the improvement in the production capacity plays an important role in economic growth in these regions.

H4C2: Innovation in the form of the enhancement of technological capacity has a positive impact on economic growth.

H4C3: Innovation in the form of development of the R&D capacity contributes positively to economic growth.

On the institutions and economic growth, institutions of the education

H4D: Expansion of tertiary education spurs economic growth.

On the relationship between institutions and structural change

H5A: There is a bidirectional relation between institutional development and economic structure.

H5B: The competitive environment has a positive effect on the economic structure.

H5C: Flexible labor markets have a positive effect on structural change.

H5D: Expansion of tertiary education has a positive effect on structural change.

H5E: Innovation drives structural change.

1.7. Outline of the Dissertation

This thesis consists of five main chapters. The first chapter is an Introduction. It introduces the background of the study, states the research problem, objectives, questions, and hypothesis, and outlines the structure of the dissertation. The Second chapter introduces the relevant growth theories and states the study's theoretical framework. The third chapter analyzes the relationship between structural change and economic growth. It first gives a descriptive analysis of the structural change in these regions. Secondly, it measures the effect of the structural change on productivity growth by employing Shift Share Analysis. Lastly, it introduces the econometric evaluation of the effect of the high-value-added sectors on economic growth. The fourth chapter evaluates the effect of institutions on economic growth. It starts with a description of the market development in these regions. After that, it evaluates the development of property rights institutions and measures its effect on economic growth by employing an econometric evaluation. Following, it narrates the development of the product market regulation, labor markets, innovation, and education institutions and gives an econometric measurement of these institutions' economic growth in these countries. Finally, the last chapter evaluates the interaction between institutions and structural change, presents the summary of findings, conclusion, and policy recommendation that highlights further research areas and limitations of this study.

2. LITERATURE REVIEW

2.1. Introduction

In this chapter, an overview of the theoretical background of the thesis is introduced. Structural Change and Institutionalism provide a theoretical background for this study. A critical review of the main concepts of structural change, institutionalism, and economic growth is given. Based on these concepts, a theoretical framework is built for the comparison of the economic development of V4 and South Caucasia.

This chapter is divided into five sections. The first section introduces the justification for the comparison of these regions. The second section gives a critical review of theoretical background of structural change, industrialization, and economic growth. The third section discusses the structural change in the globalization era. After, deindustrialization is touched upon. The Fifth section overviews the significance of the service sector in structural change and economic growth. Section six reviews the theoretical and empirical literature on institutions and economic growth. The last section concludes and states the theoretical framework of the comparison.

2.2 Justification of Comparison

Despite V4 and South Caucasia being far apart, they share similarities to substantiate the comparison of their economic development. Similarities are elucidated between the two regions in the modernization context. *The modernization* process can be understood as a transformation from a *traditional* way of life to a "*modern*" and superior society within the process of the expansion of technological and scientific knowledge, industrialization, urbanization, institutional centralization, and democratization (Levy 1968). It is an interrelated progressive process of the *economic, political, and social* transition (Zapf 2004). Economic modernization is that economic activity is directed towards profit earning, in contrast to consumption-orientation in traditional agrarian societies. Rational economic activity is supported by the regular use of sophisticated technology and ongoing innovational changes in production systems (Gerschekron 1962). Political modernization entails the rationalization of authority, differentiation of political functions and structure, and expansion of political participation. Rationalization of authority means that government is the product of man, not a product of divine powers.

Differentiation entails the separation of power, the emergence of new government functions, and the development of new structures to carry out these functions. The emergence of new social groups is reflected in an increased level of political participation via different political institutions, like interest associations and political parties (Huntington 1966). Societal modernization means increased differentiation of the structure of society and specialization of functions. Such changes create new social values in the frame of rational and scientific worldviews (Smelser 1968). The following paragraphs explain the multifaceted modernization process in these regions.

A short history. The Renaissance and Reformation period gave a start to the modernization process in Western Europe. However, it took a long-time for modernization to affect today`s V4 and South Caucasus regions. When the modernization process started and accelerated in the West, these nations were under the rule of empires with backward social, economic, and political structures. A relatively developed Czech land (Bohemia) was under the rule of the Habsburg Empire. The Ottomans invaded the main part of Hungary, and the remaining part was dominated by the Habsburgs. As a part of the Kingdom of Hungary, the Slovaks fell under the Ottoman rule; after overcoming Ottoman rule, the Habsburgs had a strong hand on Hungary and the Slovaks. The Poles had an independent statehood until the 1795 partition by Tsarist Russia, Prussia, and Habsburgs, but that state had a strict feudal structure with a lack of centralization of the state. As a Christian community, Armenians and Georgians were exposed to the Muslim Ottoman and Iranian empires for a long time in their history. The Kingdom of Georgia was divided by the Ottomans and Iran in the early 16th century and changed hands due to the wars between Muslim empires. Armenians lost their statehood in the early medieval period and became the subjects of the Ottoman and Iran. The Muslim Azeris stayed under the rule of Iran, with whom they had a religious affinity. In the early nineteenth century, the Caucasus was annexed by Tsarist Russia, and the development of these nations happened in connection with her.

Economic Modernization: The ongoing process of the Industrial Revolution in the Western World and the French Revolution in the late 18th century inspired their Eastern neighbors` elite to adopt the Western form of society to achieve their level of development. The ruling class also understood the necessity of development via the reforms to avoid being

overcome by the more powerful Western countries. A sufficient pool of workers was necessary to promote industrial production, but existing serfdom halted the movement of the peasant from their landlords` estates to the cities. Despite the Habsburg ruler issuing the Serfdom Patent (1781) to abolish serfdom, it took more than six and a half decades to apply it. *The National intelligentsia in the Habsburg empire kept struggling to raise their demand for modernization and national issues*. The Revolution of 1848 swept serfdom in Hungary (including Slovak lands) and Czech lands. The reforms accelerated; the modern property rights and banking system were introduced, the common market was established within the empire, and the railroad system and telegraph were built and extended. Serfdom was abolished in Poland under Tsarist Russia in 1863, and Poland was integrated into the Tsarist administrative system, which opened its market to Poland. The reforms in Russia also covered Poland. All reforms led to the rise of the industrial production of these nations. Although the Czech land had been the proto-industrial center of the Habsburg Empire together with Austria, reforms caused a true industrial takeoff since the 1860s. Foreign capital has played an important role in the economic modernization of the V4 nations since the mid-19th century (Berend 2003). After WWI, the V4 nations gained their independence, but the devastating war damaged their industries, especially Poland which was affected badly. The common markets of the empires promoted industrialization and economic growth before WWI, notably, the Habsburg market for Hungary and the Tsarist Russia market for Poland. Protectionism was dominant during the interwar period, and the closing of the previous market to the V4 countries harmed their economies. In that protectionism era, the V4 countries pursued import-substitution industrialization. It took over a decade to restore the pre-WWI level of economic performance. Excepting the Czech land of Czechoslovakia, Poland, and Hungary stayed as agrarian economies. Peasants still comprised 60 percent of their population before the post-war era (Berend 1998).

After conquering South Caucasia and conforming its authority there by the Peace treaty of 1828 with Iran, Tsarist Russia conducted administrative reforms. Autocratic small khanates and their trade-impeding customs tariffs had been abolished, measures and currency were standardized, and the central administrative system was established and incorporated into the imperial system in the 1930s. Humiliating defeat in the Crimean war revealed the necessity of the reforms for industrialization in Tsarist Russia, and reforms

encompassed South Caucasia too. As an integral part of the reforms, serfdom was abolished in 1864, and merchant guilds in 1867. A new non-military system of the administration and judiciary was introduced. At the same time, foreign capital was allowed to enter Russia, including Caucasia, since the 1870s. The liberal reforms gave a start to the industrialization process in the region. Tiflis and Baku turned into the industrial center of the region. The rise of the global importance of oil blessed Baku. The transportation system was improved, and the railway system was introduced in the 1880s. Railways connected Baku with the Black Sea via Ganja, Tiflis, and Batumi and with inner Russia via Dagestan. The connection of the Armenian land with capitalist centers occurred in 1908. The modern banking system emerged in the region in response to the expansion of industrial activity (Khalilzade 2019). After short-lived independence in 1918-1929, the Bolsheviks invaded the independent countries of South Caucasia in 1920. The Bolshevik idea was tolerant of national self-determination, but they considered the nation-state as a form to be filled with communist content. The formal independence of these countries was preserved within the United States of the Socialist Republics, but the socialist political, economic, and social system was enforced. After the monopolization of power in the hand of the communist party, the sovietization of the region was completed in the early 1930s. The rapid industrialization policy of Stalin affected this region, too; the Caucasian countries turned from agriculture to industrial-agricultural economies. The urbanization rate reached 36.2 percent in Azerbaijan, 30.1 percent in Georgia, and 28.6 percent in Armenia in 1939 (Pipes 1959).

Social Modernization: In response to the social development in neighboring Western Europe, the national intelligentsia of the V4 nations emerged from the lower nobility. The National Intelligentsia`s vision is to develop socially with the idea of enlightenment mixed with romantic nationalism. As a part of nationalism, the standard literary languages of these nations were created between 1770 and 1840s so as not to be assimilated by other nations. The creation of the standard literary language led to the development of national literature and science, education, media, and legislation. Development of education occurred via the expansion of literacy and the replacement of traditional schooling with modern ones. The literacy rate was around 30 percent in Hungary and Poland in the mid-19th century; it increased to 60-65 percent before World War I. The newspapers and journals touched on

the main problems of its period. Mobility and expansion of industrialization spurred urbanization and led to the rise of the new working class and new elite- the bourgeoisie. As a more developed part of the region, Czech land had a larger share of the working class than others, although it significantly lagged behind Western Europe. The working class stood for 10- 20 percent of the population in Hungary (including Slovak lands) and Poland in the late 19th century. Despite its positive effects, the 1848 revolution did not root out the old elite, especially the upper nobility, and their dominance continued even until sovietization. Some lower nobility lost their privilege, but their social connection enabled them to find a place in the government, military, and administration. In parallel with the dominance of the old nobility, a new bourgeoisie elite emerged. The old nobility considered the bourgeoisie way of life against their principles; therefore, foreigners, especially Jews, positioned in that place. Another feature distinguishing the social modernization of the region was the separation of the peasants from societies. The bridge between nobility and peasants was built in response to the existential threat of World War I (Berend 2003).

The local landed aristocracies` sons educated in Saint-Petersburg, other main centers of Russia and Western countries, led to the emergence of the incipient national intelligentsia in the Caucasus in 1830-40s. They attempted to create a standardized literary language and textbooks in the native language and introduce modern schooling. Nonetheless, the take-off of the social change occurred in the 1870s as a response to industrialization and urbanization. The media in the native languages started to be published. The literacy rate expanded from 15 percent in 1897 to 35 percent in 1913 among Azeris, and a rising tendency occurred among Georgians and Armenians. The urbanization rate in South Caucasia reached 21 percent on the eve of World War I, and the working class emerged (Suleymanli 2021).

Political Modernization: Attempting to protect national interests under the dominance of empires is the similarity of the political development of these regions. The Poles fought against Tsarist Russia thrice in the 19th century to restore their lost sovereignty. Hungary declared its short-lived independence from the Habsburgs in the Revolution of 1948, and Slovaks revolted against Hungary for their autonomy. The Czechs demanded autonomy within the Habsburg Empire in a silent way. However, the lack of national ties of the

emerging bourgeoisie class deprived them of formulating a political process as in Western Europe. Although the parliamentary system was imitated in Habsburgs and semi-independent Hungary (since 1867), the struggle to formulate the political system on the Montesquieu principle was feeble. The *national* agenda of political life dominated these nations, and they gained their national independence in the turmoil of World War I (Berend 1998). Although the V4 countries initiated the Western-style political system after their independence, partially excepting Czechoslovakia, they turned to authoritarianism in the interwar decades. The traditional noble dominated Poland and Hungary's political and economic life (Berend 1998).

Increased mobility of the people after the abolishment of serfdom and urbanization caused day-to-day contact of the nations in the South Caucasus. National issues also formulated their political life. Under the dominance of the Muslim empires and losing their statehood for a long time, Armenians were denied land aristocracy. Therefore, they had to specialize in being traders and craftsmen. Abolishment of the serfdom bankrupted the Georgian landed aristocracy, and Armenians turned to the dominant bourgeois in the Georgian city - Tiflis and landless Georgians migrated to Tiflis and worked for the Armenian capitalists. Such a class contrast in the national context ignited Georgian nationalism, and it dominated the political agenda of the Georgian intelligentsia. Due to their centuries-lasting experience in trade and business, Armenians turned to the upper bourgeoisie in industrial Baku, and Azeri capitalists could only save their lower bourgeoisie position. The weaker economic position in their own city, and being under the dominance of Christian Russia, affected the Azeris` political agenda. The desire to get independence for Armenians in the Ottoman Empire dominated Armenians` political agendas. In the political process in Tsarist Russia, each nation struggled to advance its position within the region. Although the election was granted in large cities like Baku and Tiflis, Western-style political development was not achieved. The political struggle for autonomy in the South Caucasus in the first decade of the 20th century turned to the claims of national independence in the political turmoil of World War I in Russia. These three nations formally accepted the Western-style political system with universal suffrage, but national conflict rather than political development dominated their political life during their short-lived independence period (Suny 1996). In Transcaucasia, the Communist Party

monopolized the political and economic sphere. Immediately after WWII, the USSR imposed socialism in the V4 countries and incorporated them into the communist bloc. *Although the V4 countries had more reform opportunities than Transcaucasia, and this opportunity enabled them to have a better economic performance, the similarity of inferior economic and political systems persisted.*

The modern economic history of V4 and the Transcaucasia region until the demise of socialism shares fundamental similarities. In contrast to the modernization of the Western nation within the sovereign states, nations in both regions started to modernize under imperial rules, and it contributed to *the incomplete modernization* of these regions. Both regions experienced industrialization with liberal reforms until WWI, but there was not enough economic and social change to impose Western-style political modernization. Although it had been shorter in V4 than in Transcaucasia, state socialism had dominated their economic policy. *But the similarity of the economic performance ceased, and a divergence started in the post-socialist period.* It is worth investigating the reasons behind the economic divergence of two regions with similar pathways of economic modernization.

2.3 Theoretical background of structural change

The economic history of modern development reveals that economic growth in developed countries has been accompanied and driven by a change in the structure of production and economic activities (Kuznets 1966). Rostow (1959) conceptualizes the historical model of economic growth. In his model of *stages of economic growth*, Rostow incorporates the supply side, such as the state of technology and quality of entrepreneurship, and the demand side, such as the level of income and population and features of tastes co-determining factors of level of total output. According to this model, there are five stages of economic development. The *traditional society* was characterized by labor-intensive subsistence agriculture. There is no systematic understanding of the physical world, which impedes regular flows of innovations. The main defining features of the *pre-conditions for the take-off stage* are the increase in the social overhead capital, technological revolution in agriculture, and increase in import financed by more efficient production. The *social overhead capital* assisted the creation of the national market and enabled the effective rule of government. In the *take-off stage*, rapid growth occurs in a

limited group of leading sectors, and industrialization starts. The main characteristics of this stage are the self-sustenance of industrial production, the institutionalization of the source of capital, and the expansion of entrepreneurship and technicians. In the *drive to maturity stage*, the new leading sectors emerge, the use of technology increases, the industry diversifies, and the standard of living rises. At the *high massive consumption stage*, the technology matures, and a certain level of per capita income is held. At this stage of development, there is a radical change in the structure of society. The share of the rural population decreases, and urban life becomes the dominant way of life. The new laborer force, born into the city rather than migrated from rural areas, reformulates the objectives and outlook of the political and social process. In congruence with Engel`s law, increased income of the new working force spurs the demand for consumer goods and stimulates the rise of the share of consumer goods in industrial production.

Classical economics differentiates these activities based on their capacities to create surplus value. Accordingly, only some activities create a surplus value, and reinvestment of this surplus value, mainly in the surplus-creating activities, is the main source of economic growth. A prominent physiocrat, Quesnay considers agriculture the only sector to create surplus value. Smith claims that agriculture, industry, and commerce also can create surplus value. Malthus also accepts the importance of the manufacturing sector for economic growth. However, he relates the importance of the manufacturing sector to providing demand for agricultural products. As a result, increased demand from the manufacturing sector for agricultural demand incentives the farmers to increase agricultural production. Attempts of neoclassic economics to theorize the sectoral composition and economic growth revolve around the Solow-Swan growth model. One line of studies integrates the sectoral composition on the Solow model by incorporating the assumption of nomothetic preferences (Echevarria 1997; Laitner 2000 and Kongsamut, Rebelo, and Xie 2001). These studies assume that technological change across sectors is different and exogenously determined. Several theoretical studies attempt to endogenize the technical change from the point of sectoral composition (Romer 1990; Grossman and Helpmann 1991; Aghion and Howitt 1992). According to this model, the final good in each sector is assembled from different intermediary goods. Innovative activities increase the number of sectors (the number of available intermediary goods) or the quality of intermediary goods. At the

aggregate level, these effects increase the total factor productivity. Acemoglu and Guerrieri (2008) introduce balanced growth at the aggregate level with sectoral differences in the factor proportion and capital deepening. The capital deepening increases the output in the sector with a larger share of capital, but at the same time, it leads to the reallocation of capital and labor away from this sector. In Ngai and Pissarides' (2007) multisector growth model with many final consumption goods, technological development is differentiated across sectors. In the case of the low substitutability of final goods, employment shifts away from the sector with a higher pace of technological development. Along the balanced growth path, employment expands in the sector with the lowest pace of technological progress.

In short, structural change and economic development in developed countries and latecomer economies occurred through the expansion of industrial production and employment in the industry. Manufacturing activity has stayed the driver of industrialization, structural change, and economic growth. Arthur Lewis introduced the "dual sector model" to explain economic development through structural change. Lewis (1954) separates the economy into the capitalist and subsistence sectors. There is *surplus labor* in the subsistence sector with zero or even negative marginal productivity. The subsistence sector does not use reproducible capital, and it mainly entails agriculture, causal labor, petty trade, and women in households. The subsistence wage at which surplus labor is available for employment is determined at the minimum for subsistence. Surplus labor can provide an unlimited supply of labor for the expansion of the capitalist sector at a constant wage slightly higher than the subsistence wage in traditional sectors. The employment of surplus labor at a constant wage in the capitalist sector provides profit for capital owners. The distinctive feature of the capital owner from other surplus-value owners is that they invest the profit in the reproducible capital, which expands employment in the capitalist sector and increase overall output. Capital formation is not limited only to profit; credit creation can assist the formation and expansion of the capitalist sector. The exhaustion of surplus labor can limit the expansion of the capitalist sector. As the surplus labor is exhausted in the subsistence sector, the labor becomes elastic to wages. Capitalists have to increase the wage levels to attract additional labor. However, the mass migration

from countries with surplus labor can reduce the pressures on wage rise and facilitate further expansion of the capitalist sector and output per capita.

The counterpart of the capitalist sector of the Lewis model in the developed economies coincides with the industry and, more specifically, manufacturing industry. Several specific growth-conducive features of the manufacturing sector make it have a determining effect on economic growth. The manufacturing sector has a higher productivity growth (Kaldor 1967; Cornwall 1977; Timmer, de Vries, and de Vries 2015; McMillan, Rodrik, and Sepúlveda 2014). The higher capital intensity, higher capacity of capital accumulation and the capacity of rapid technological advancement and higher R&D intensity (Szirmai 2012; Lavopa and Szirmai 2014, Rodrik 2016) are reasons for the higher productivity growth via the manufacturing sector.

The manufacturing sector's economies of scale effect increases sectorial productivity and overall economic growth (Naude and Szirmai 2013). Expansion of manufacturing production reduces the unit fixed cost and unit costs and enables adopting of more efficient technologies (Haraguchi, Charles, and Eveline 2016). In addition, the learning-by-doing effects of the manufacturing sector facilitate both productivity growth and mastering technology and innovation (Szirmai, Naude, and Ludovico 2013).

The positive externalities of manufacturing can drive growth and productivity in other sectors of the economy. The forward and backward linkages with other sectors spur production in these sectors and diffuse technological advancement to them. The spillover effect channels the technological development to the sectors that don’t interact with the manufacturing sector (Tregenna 2011).

2.4 Structural change in the era of globalization of production

The structure of manufacturing production started to change in the 1970s. The upgrading in manufacturing production via transformation to higher capital-intensive production in developed countries and the rise of the competitors from the Newly Industrialized Countries (NICs) necessitated the change in the production form (Gereffi Humphrey and Sturgeon 2005). It was not profitable anymore to keep all tasks within the company. Therefore, they shifted the lower value, standardized activities to the low-cost

countries and kept unique, hard-to-copy, and high-value core activities within firms (Kaplinsky 2015). As a result, Global Value Chains (GVC) emerged in which companies worldwide tended to specialize in the tasks and trade with intermediate goods in contrast to the production of the final goods (Gereffi Humphrey and Sturgeon 2005). Globalization of manufacturing production introduced both opportunities and challenges for developing countries to industrialize. Globalization of production frees developing countries from building the whole industry and enables them to build and upgrade their industrial capacity by specializing in the production of the parts (Taglioni and Winkler, 2016; Baldwin, 2011; Baldwin, 2016). The negative effect of industrialization via integrating the GVCs derives from the decisiveness of the MNCs in the specialization of the industries of developing countries. The MNCs are not interested in upgrading of industry of the developing country in the GVCs and induce them to be stuck in the narrow specialization in low-cost and lower capital-intensive activities (Rodrik 2014). Another deficiency of industrialization via the MNCs is the weakness of linkages with the domestic economy. The lower labor cost and fiscal stimulus are the main incentives for the MNCs, and they are not inspired to build forward and backward linkages with the domestic producers and upgrade their technological and organizational capacities (Yamin and Nixson 2016). Therefore, developing countries have to take action in capability building.

2.4 Deindustrialization

It has been accepted that industrialization played a critical role in the economic development of both advanced countries and latecomers. However, the deindustrialization process in developing countries in the last decades raises questions about their prospects of economic development (Rodrik 2016). Deindustrialization occurs in the form of both decline in the share of the manufacturing output in the total product and the share of the manufacturing employment in the total employment. Both developed and developing countries are experiencing deindustrialization, but the different characteristics define the various effects on their economies (Tregenna 2016). Tregenna (2013) concludes that output and employment deindustrialization at a lower level of income than what has occurred in developed economies causes premature deindustrialization in developing countries. The negative effect of premature deindustrialization on long-term economic growth is missing the opportunity to capture more of industrialization's benefits. Rodrik (2016) claims that the

rapid productivity growth in the manufacturing sector and trade liberalization are the main drivers of deindustrialization. According to this explanation, the income elasticity of demand for manufacturing goods is lower than one. Therefore, a productivity growth-enabled fall in the relative price of the manufacturing goods does not translate to a rise in the demand for the manufacturing goods. As a result, labor-saving productivity growth causes a fall in manufacturing employment, and declining relative prices of manufacturing goods reduces the share of the manufacturing output. Secondly, globalization and trade liberalization negatively affected the domestic industries of countries that haven't acquired a comparative advantage in manufacturing production and reversed the industrialization process in those countries. As a result, advanced and some Asian countries could avoid output deindustrialization. Firpo and Piero (2018) claim that trade liberalization stuck Brazil in the low productivity activities in which it has comparative advantages and caused reversed structural change. Haraguchi (2016) concludes that the share of the manufacturing output and employment in the total output and employment haven't declined overall in developing countries, the manufacturing concentrates in a few populous countries.

2.5. Service Sector and Structural Change

The service sector has long been considered a low-productivity growth, non-tradable secondary activity (Baumol, Blackman, and Wolff 1985). The ICT revolution changed the characteristics of the services, and the approach to the role of the services in economic growth has changed. The technological development in ICT contributed to the rise in the productivity of the services and boosted the trade in services over borders (Lambregts, Beerepoot, and Kleipert 2017). Bryson, Daniels, and Warf (2004) distinguish the traditional (consumer) and modern (producer) services. The former refers to services that require face-to-face interaction and closeness of the services to their consumers. The modern (producer) services are inputs for the production sector and can be delivered over a distance. Eichengreen and Gupta (2013) identify two waves of growth of the service sector. The first wave occurs at the lower income level, and the expansion of traditional services mainly drives it. The second wave happens with the rise of the ICT revolution and occurs at a higher income level through the expansion of modern services such as business, finance, legal and technical services. E Ghani and O'Connell (2016) claim that the service sector can contribute to developing countries' structural transformation and development due to

similar productivity growth, tradability, and creation of good jobs in the services as in the manufacturing sector.

Noland, Park, and Estrada (2012) conclude that only tradable services experience productivity growth despite the expansion of the share of the services in the Asian economies, and the pace of service export is slower than overall service sector growth. Meglio (2017) suggests that the development of modern services in Asian countries is dependent on the sophisticated export-oriented manufacturing sector. By investigating the competitiveness of the producer services, Guerrieri and Meliciani (2005) propose that the knowledge-intensive manufacturing sector creates a demand for the producer services, conditions their productivity, and increases international competitiveness. Lundquist and Olande (2008) investigate the development of the producer service and manufacturing sector after the ICT revolution. They conclude that the development occurred first in the manufacturing sector, and later it contributed to the transformation of the producer services.

Ghani and Kharas (2010) claim that globalization and a rise in the trade of services can open opportunities for developing countries to develop their economies via the service sector according to their comparative advantage without the necessity of industrialization. Upgrading the value of the service exports requires a telecommunication infrastructure, a pool of quality human capital, and quality institutions (Goswami, Mattoo, and Saez 2012). Compared to goods, trade in services has higher information asymmetry, which requires appropriate institutions to reduce uncertainty. Marconini (2012) summarizes that outward FDIs are the main drivers of the growth of the producer service exports in Brazil. He indicates the advanced financial infrastructure and quality human capital as the main reasons for the competitiveness of the producer service export. Malaysia is not able to capitalize on the FDI-dominated manufacturing exports to advance its service exports, especially transport services and imports it (Abidin, Yean, and Heng 2012).

The expansion of the globalization of service production increased the interest in the potential of service offshoring for economic development. There is dynamism in offshore services; therefore, developing countries can join the GVC in service and upgrade within it by having a pool of educated labor force with demanded skills (Fernandez-Stark, Bamber, and Gereffi 2011). By investigating the effect of the offshore service business on

the skill development of the employees in the Philippines, Marasigan and Lambergts (2017) conclude that it locks the skilled workers in the lower value-added, lower skill-intensive tasks such as call center and back-office services and cause underutilization of skilled human capital.

In investigating the potential of the manufacturing and service sector to transform the Indian economy, Amirapi and Subramanian (2015) suggest five criteria for a sector to become the engine of growth: high level of productivity, dynamic productivity growth, expansion of the sector to utilize domestic resources; congruence with the comparative advantage of country and exportability. The service export is skill intensive. Therefore, it does not have the capacity to utilize the prevailing pool of the low-skilled labor force of India. Consequently, the skill endowment of India does not support the expansion of skill-intensive service exports. Dasgupta and Singh`s (2005) conclusion is similar in that the ICT services export is skill intensive, which is why the insufficiency of human capital is a barrier to the further expansion of this sector. The service export sector in developing countries employs a tiny fraction of the total workforce in service activities and is incapable of absorbing unskilled labor (Beerepot, Kleipert, and Lambregts 2017).

2.5 Institutions and Economic Growth

North (1990) defines institutions as "a rule of game or *humanly devised constraints* that shape human interaction." Institutions constrain behaviors; however, such constraints *enable* other behaviors that would not be possible to occur otherwise. According to Lin and Nugent (1995), institutions are humanly devised behavioral rules that, by governing and framing the interactions of human beings, enable them to form an expectation of what others will do. Hodgson characterizes "the institutions as established systems of social rules that structure social interactions" (Hodgson 2006; pp 3). The rules, norms, and beliefs are structural components of institutions. These components provide individuals with cognitive, coordinative, and informational foundations of behavior. Most widely accepted definitions of institutions put more emphasis on rules. As behavioral instructions, rules assist individuals in having a cognitive understanding of their situations; however, norms and conventions are decisive in motivating individuals to follow the rules (Greif 2006). North (1994) also categorizes the formal and informal components of institutions. The

functioning of formal institutions like rules, laws, and constitutions is heavily dependent on informal institutions like norms and conventions. Formal rules are enforced by official establishments like bureaucracy, courts, judges, and police, while informal rules are self-enforcing, like reciprocity, obligation, etc. In this thesis, institutions are understood as rules, laws, norms, and convention that gives certainty to individuals about the expected behavior of others and structure social interactions by setting constraints on some behaviors.

Williamson (1979) develops the transaction cost theory. The transaction cost is the cost of arranging contracts and their execution. According to this theory, counterparts of transactions can be opportunist. Therefore, it can create uncertainty about the execution of duties by parties of transactions. Opportunism and uncertainty can increase in economic activities that involve transaction-specific investment. In investigating the role of institutions in economic development, North (1984) integrates the production and transaction costs. Production cost occurs when transforming inputs into outputs. The division of labor and specialization results in a fall in production costs. The labor division and specialization necessitate alienated and over long-distance human interactions, creating room for opportunistic behavior. Therefore, it increases the transaction costs. In the interest of reaping the benefits of the fall in production cost due to the labor division and specialization, effective institutions are necessary to reduce transaction costs. North (1992) claims that the provision of the lower transaction cost through the political and economic institutions enables the efficient functioning of the factor and output markets and determines economic growth. Institutional innovations can spread the risks necessary for large-scale investments (North 1991). Institutions allow for reaping the benefits of specialization, trade, and external economies (Lin and Nugent 1995).

Institutional economics rose as criticizing the main assumptions of orthodox economics (classics and later neoclassic) for their implausibility to the real economic world. These assumptions are the unbounded rational man with given preference and perfect knowledge. Both old and new institutional economics agree that the theories on the assumption of a man with unbounded rationality and perfect information cannot correctly explain the real-world economic process. Old institutional economics refuse the individual

with given preference and claim that their preferences are formulated by culture and institutions. Habits and customs are the main determining factor of their behavior, rather than rationality. As emerging as opposed to classic economics, old institutional economics can present a descriptive work but fail to introduce an alternative theory to orthodox economics. The approach of the new institutional economics to the assumptions of unbounded rationality and individuals with complete knowledge is critical. The New Institutional Economics is born out of neoclassic economics rather than denying it. In contrast to OI, the NIE accept the assumption of rationality, but individuals have cognitive limitations, a lack of complete information, and difficulty monitoring and enforcing the agreements. Therefore, the NIE relies on an individual with bounded rationality.

Hall and Jones (1999) suggest the concept of social infrastructure as a collection of institutions and government policies. The social infrastructure affects the economic actors` decision to accumulate physical and human capital and produce output. The favorable social infrastructure saves the economic actors from diverting economic resources from productive to unproductive activities. Authors conclude that the differences in the social infrastructure among countries causes the differences in the physical, human capital accumulation, creation and transfer of ideas, productivity, and, therefore, incomes.

In the framework of the Schumpeterian technological innovation approach to economic growth, Nelson and Sampat (2001) propose physical and social technologies. They define physical technologies as a recipe for transforming the inputs into outputs, while social technologies are a division of the work and coordination of economic activity. Institutions are understood as standardized social technologies. Institutionalized social technologies reduce the cost of coordination of interactions. The efficient operation of the newer physical technologies requires the appropriate social technologies. The ability of societies to provide supportive social technologies to new physical technologies determines their economic growth (Nelson 2008). Mathews (1986) shares a similar idea that institutional change as a source of economic growth entails the adaptation of institutions to changing technology and tastes.

A study on the economic history of the development of the New World by Sokoloff and Engerman (2000) reveals that inequality in wealth, human capital, and political power

conditions the development of economic institutions and growth. Initial extreme inequality reproduces the institutional setting, which enables the elite to exclude the majority of the population from accessing opportunities and keep their elite status at the cost of the non-realization of the potential of the disadvantaged group in the post-colonial countries, which is detrimental to their growth. Acemoglu, Johnson, and Robinson (2005) theorize the effects of political institutions on economic institutions and growth. Economic institutions shape the economic actors` incentives, but economic institutions are themselves determined by the political institutions. *Inclusive* political institutions that entitle political power to broader society and provide more effective protection of property rights and more equal access to economic resources. The guarantee of reaping the benefits of the fruits of investments incentivizes the economic actors to invest in physical, human capital, and technology. If the political power is concentrated in the hand of a small circle of the elite, then there would be a high incentive for the elite to limit the secured property rights only to themselves, renege on commitments ex-post and exclude the majority from access to the economic resources. In such an environment, the economic potential of the excluded will not be realized because they will not risk investing in the high probability of non-earning the benefits of their investment. At the same time, a small circle of political and economic power holders will not have the incentive to invest in increasing the efficiency of production due to the lack of competition. Contrastingly, they will have more appetite to rely on rent-seeking activities because of the lack of any power to refrain them.

Institutional change. North and Thomas (1973) propose that change in the relative prices is a cause of institutional change. An increase in the relative price of some goods makes them more valuable and creates incentives to establish more efficient institutions for producing these goods. According to Lin and Nugent (1995), historically, the change in the relative abundance of a factor of production triggers institutional change. There is a widely accepted argument that powerful interest groups can block and make institutional change harder (North 1992; Acemoglu, Johnson, and Robinson 2005). In the background of the power distribution approach, Mahoney and Thelen (2010) suggest four types of institutional changes: displacement, layering, drift, and conversion. Displacement is a total replacement of the previous institutional systems with new ones. It is driven by revolutions or radical change. In some cases, institutional challengers are not strong enough to make a

radical institutional change, but they add new rules within the institutional system. Defenders of the status quo can protect the existing rules, but they are unable to block the introduction of modification and new rules. Drift in institutional setting occurs when the institutions stay formally unchanged, but their implication is modified due to changes in the external environment. Conversion occurs when formally unchanged institutions are interpreted and implemented differently. In case of drift, change in the external environment is responsible for a different way of the implication of existing institutions, but institutional challengers are active to exploit the ambiguity in an existing institutional setting in *conversion*. A line of literature challenges the determinacy of the power distribution for institutional change. Roland (2004) challenges the determinacy of political powers for institutional change. He categorizes the institutions into slow- and fast-moving institutions. The change in the slow-moving institutions culture, beliefs, and norms occurs slowly. Fast-moving institutions like political institutions do not change frequently, but their change can happen quickly. Roland describes institutional change as an interaction between slow-moving institutions and fast-moving legal and political institutions. The universality of institutions across time and countries has been criticized and rejected based on the necessity of supporting institutions to well-function the new institutions in the existing institutional structure (Rodrik 2008).

Although the importance of the shift from inferior to superior institutions is recognized, it would be hard to make this switch. The path dependence theory (PDT) explains that the current state of actions can be dependent on the previous state of actions. Earlier steps in a direction engender further steps in this direction. However, path dependence does not claim unbreakable deterministic dependence, rather suggesting that the more likely outcome will be a function of the past. David (1985) and Arthur (1989) developed the PDT by analyzing in choice of technologies, and North (1991) investigated it in the evolution of institutions. Increasing return is important for path dependence both in choice of technologies and institutions. Increasing return process claims that more choices of path increase the probability of further steps along this path. Determining the role of the political setups makes the path dependence in institutions more complex and specific. Four features of politics induce the institutions to be path dependent: 1. Central role of collective action 2. The high density of institutions 3. Possibilities of political authority to deepen

asymmetry of power for favoring themselves 4. Intrinsic complexity and opacity of the institutional webs (Pierson 2000). *The centrality of collective action*-Economic markets considers the individual as atomistic, and they have a chance of shifting from one economic deal to another when they are not satisfied. In contrast, there is not much opportunity in politics. The result of an action of an individual depends totally on others` actions. Exist option is prohibitively high to people whom existing political arrangements serve poorly. In contrast to markets, authority is the main mechanism in politics than exchange. *The high density of institutions*- The complexity of social interdependence makes replacing old institutions with new ones costly. Institutions motivate individuals and organizations to invest in specific skills and develop relationships with other individuals and organizations. These increase the attractiveness of the existing institutions because accumulated skills and relationships may be useless in the new institutional setup. *Possibilities of political authority to deepen asymmetry of power* – "Actors in power may use political authority to bring changes in the rules of the game (both formal institutions and public policies) to expand their power." Over time, a balanced conflict can turn to a point via a lack of anticipated reactions and ideological manipulation, making open political conflict unnecessary. In turn, it would result in the persistence of existing institutions (Pierson 2000, pp 10). *Intrinsic complexity and opacity of the institutional webs* - The measures for evaluation of the performance of institutions are extremely limited; therefore, it is hard to spot the deficient element of institutional arrangements. For example, the price can give enough information in the markets, but the institutions have no similar mechanism. Additionally, institutions are interdependent and institutional arrangement is extremely complex. Therefore, it is hard to match respective institutions and their effects.

After the institutions gained theoretical importance as an ultimate factor for income differences, empirical research, mainly econometric and statistical models to evaluate the role of the institutions in economic growth, proliferated. Knack and Keefer (1995) initiate to measure the effect of institutions on economic growth and conclude that institutions play an important role in the convergence with advanced economies and economic growth. By deploying panel regression, Hall and Jones (1999) state that institutions and government policies can support economic growth by stimulating investment in physical and human capital and technologies. Rodrik, Subramanian, and Trebbi (2004) conduct the econometric

test of the effect of geography, trade, and institutions on economic growth and conclude that the institutions have a primacy effect on growth over trade and geography. Glaeser, Porta, Lopez-de-Silanez, and Shleifer (2004) conclude that human capital has supremacy over institutions in economic growth and human capital improves productivity and institutions. Lee and Kim (2009) conclude that despite institutions' importance in economic growth, human capital and technology are the determining factors of growth. In reviewing the literature on institutions and economic growth, Durlauf (2020) states that quantitative evaluation of the effect of institutions on economic growth has methodologically inherent deficiencies. Firstly, there are immense factors that can affect economic growth, and therefore, estimation of the effect of institutional indicators on growth indicators is sensitive to the control variables. Therefore, various studies can have different results due to the choice of different control variables. Secondly, in the reality of the extensive factors affecting growth, it is hard to find the instrumental variables that don't correlate with the omitted variable to satisfy the requirement of the instrumental variable.

In addition to theorizing the role of the general institutional quality and the overall estimation of the effect of institutions on economic performance, the studies on the impact of specific institutions on income have special importance. Acemoglu and Johnson (2005) evaluate the effects of property rights and contracting institutions on economic growth. They conclude that property rights institutions have more influence on investment, financial development, and economic performance. Property rights can be understood as a contract between the rulers and economic actors and contracting as a contract between the economic actors. In the case of less security of property rights, the economic actors don't have the power to enforce the arbitrary government to execute its obligations. Therefore, the economic actors will abstain from the risky investment in case of the risk of expropriation. The contract institutions may have an effect on financial intermediation but not much on investment and economic performance. The logic behind this is that economic actors can find alternative ways of contracting if the formal contracts are weak to enforce. Besley and Ghatak (2010) suggest that absence of strong property protection can harm economic performance in the following ways. The threat of expropriation makes the owners reluctant to invest in increasing the value of their assets. Secondly, it diverts the owners` resources from productive activities to unproductive property protection. Lastly,

the lack of secure property rights impedes trade and deprives the owners of access to external finance. Haggard and Tiede (2011) investigate the relationship between the rule of law and economic growth. They conclude that the weaker rule of law has negative effects on economic growth in the following ways. Firstly, in the reality of the lack of equal treatment, the public judicial systems cease to function, and individuals refer to costly alternative ways. Secondly, it creates an opportunity for rent-seeking behavior, and a significant amount of resources are wasted in unproductive rent-seeking activities. Lastly, it results in wasting public resources due to the lack of checks and balances. The possible negative effect of corruption and bribery on economic growth is that it can be used to limit competition and can motivate unproductive rent-seeking activities at the cost of entrepreneurship (Bardhan 1997).

It has been suggested, disputed, and broadly accepted that expansion of the markets and market institutions are the main drivers of economic growth. In analyzing the emergence of a "market society" out of the traditional society, Polanyi (1944) claims that a market society cannot sustain itself without the interactions of the market, state, and society. Rodrik (2008) conceptualizes the relations of the market with society. He suggests that the markets are not self-creating, self-regulating, self-stabilizing, or self-legitimizing. Therefore, the following non-market institutions are necessary for the functioning of the market institutions: Property rights Institutions; Regulatory Institutions; Macroeconomic Stabilization Institutions; Institutions for Social Insurance, and Conflict Management Institutions. The first three institutions are popular in the current literature. Rodrik vitalizes the importance of social insurance and social conflict management institutions for the continuance of growth. These two institutions together function as conflict management institutions in the forms of representative political institutions, free elections, trade unions, social partnerships, and social insurance. These institutions increase the social groups` incentives to act in cooperation and reduce the payoff of non-cooperative actions. Rodrik (1999) proposes that strong social conflict management institutions enable society to quickly execute the necessary adjustment measures, such as fiscal policies and key relative prices to external shocks. In the weakness of the social conflict management institutions, the uncertainty persists, the cost of external shock gets bigger, and the persistence of the growth reverses.

A line of studies emerged to criticize the oversimplification and reduction of the development problem of the developing countries to the institutional causes. They challenged the view of the linear, one-direction relationship from institutions to economic growth. Chang (2002) claims that the institutional environment in today`s developed economies was away from the current level, and they did not rely only on institutional development, especially property rights institutions, in upgrading their economies. Rather, the targeted government policies had been crucial for their economic development. Reinert (2007) separates the institutions of exchange, such as money, property rights, and the rule of law, and institutions of production, like industrial policies. He claims that the main problem of developing countries is the underdevelopment of production than exchange. Therefore, he criticizes the overemphasis on the institution of exchange while ignoring the institution of production in policy recommendations for growth in developing countries. Rodrik (2008) questions the time invariance of the urgency of institutional development for economic growth in developing countries. He states that different factors can be necessary for economic growth in different periods. Therefore, insistence on institutional development rather than searching for binding constraints would result in undesired results.

2.6 Conclusion

This chapter comes to the conclusion that the shift from lower-value-added activities to higher-value activities is the mechanism of economic development. It has long been argued that manufacturing is the engine of structural change and economic growth. The rising productivity and tradability of the producer services due to the ICT revolution increased the academic attempts to put the service into the rank of manufacturing for structural change and economic growth in developing countries. However, the higher value-added producer services require a pool of highly skilled human capital, and the development of the competitive modern service sector depends on the existence of the manufacturing sector.

Institutions play an important role in economic growth by enabling efficient functioning of the factors and output markets. Political institutions are decisive in the formation of economic institutions. By granting political rights to the broader society, political institutions can provide protection of property rights to the broader society.

Protection of property rights stimulates investment in physical and human capital and technologies, which are the ultimate drivers of economic growth.

Rodrik, Macmillan, and Sepulveda (2017) introduce a unifying framework that entails *structural transformation* and *fundamentals* (institutions). I follow the same approach and conduct a comparative analysis of the economic growth in V4 and South Caucasia within a *unifying framework* of structural change and institutions. The *structural transformation* focuses on channeling the resource to the high value-added progressive sectors while institutional development (*fundamentals*) would enable the development of capabilities across all sectors, and both are essential for economic growth. I will give an overview of the overall change in the structure of economies in both regions and evaluate the effect of the structural change on labor productivity and economic growth. I will give a critical overview of the institutional development in these regions in the post-socialist period and measure the effect of improvement in institutional quality on economic growth.

3. Structural Change and Economic Growth

3.1. Introduction

Reallocation of labor into the progressive sectors with a high physical and human capital intensity, higher productivity, and technological capacity is important for economic growth. Structural change has particular importance for non-developed countries. Huge productivity gaps across sectors characterize developing countries, and the shift of the excess labor from the low-productivity sectors to the higher productivity activities can contribute to upgrading overall productivity. At the same time, freeing the excess labor from the lower productivity sectors can result in a rise in the marginal and overall productivity in these sectors. In addition to the increased share of higher productivity activities, sectorial reallocation indirectly contributes to productivity growth. Expansion of the technology-intensive sectors can have positive externalities to the technological capacity and productivity of other sectors. Peneder (2003) tests the effect of the industrial structure on economic performance and concludes that structural change played an important role in the economic growth of the OECD countries in the 1990s. Studies on developing and emerging economies conclude that the reallocation of labor is an important factor for overall economic performance (Rodrik and Macmillan 2011; Diao, Macmillan, and Rodrik 2017).

This chapter aims to compare the structural change that occurred in V4 and South Caucasia in the post-socialist period and evaluate the effect of the structural change on aggregate productivity. The next section introduces the stylized facts on changes in employment and output structures. Section 3 analyzes the direct effect of the structural change on total productivity by employing the Shift Share Analysis. Section 4 employs an econometric model for evaluating the industrial structure's direct and indirect effect on economic growth. Finally, section 5 gives a critical evaluation of the challenges and opportunities for the development of these economies.

3.2. Patterns of Structural Change

At the beginning of the transition from a centrally planned to a market economy, both V4 and South Caucasian countries inherited an inefficient over-industrialized economy with underdeveloped service sectors. In the background of the adjustment to the

market system, the service sector expanded, and the industry shrank. Distinct characteristics and levels of specialization in COMECON and integration into the USSR economic system and different paths of the transition process produced, unlike the destiny of the industrial sectors in these regions. Pula (2018) shows that V4 economies specialized in the relatively advanced manufacturing products in the COMECON system,

Table 1. GDP per capita (PPP constant 2011 international USD)

	Armenia	**Azerbaijan**	**Georgia**	**Hungary**	**Czechia**	**Poland**	**Slovakia**
1985	10,485	8,558	13,868	10,452	11,725	9,022	11,815
1990	9,669	7,394	12,140	10,296	15,560	8,150	12,374
1995	4,703	2,999	3,611	10,135	18,751	9,408	11,874
2000	5,140	4,215	4,892	13,129	22,327	12,732	13,905
2005	8,007	7,554	6,850	18,141	26,164	15,581	17,650
2010	8,331	16,154	8,443	20,036	27,630	20,609	21,941
2015	10,042	17,460	10,603	22,788	24,963	24,177	24,588
2018	11,454	16,628	11,985	25,623	27,184	27,455	27,076

Source: *Maddison Project Database 2018*

but the USSR mainly in commodity supply. Additionally, limited integration of the V4 manufacturing sector with the Western TNC since the 70s contributed to upgrading their efficiency and capacity to survive and integrate to global production in the early years of transition. At the same time, trade with Western countries has been significant in the V4 economies. Therefore, the collapse of the COMECON didn't hit them as badly as the CIS countries. All these together made the V4 economies and their manufacturing industry more resilient to the transition shock. The South Caucasian economies were totally and highly integrated into the USSR economy. Their industry produced for the USSR military industry and was heavily subsidized by USSR (mainly Armenia). The disintegration of the socialist economic ties caused a collapse of industrial production and a colossal output decline in South Caucasia (Table 1).

Figure 1A. Labor Productivity Growth (V4, log (PPP constant 2017 international USD))

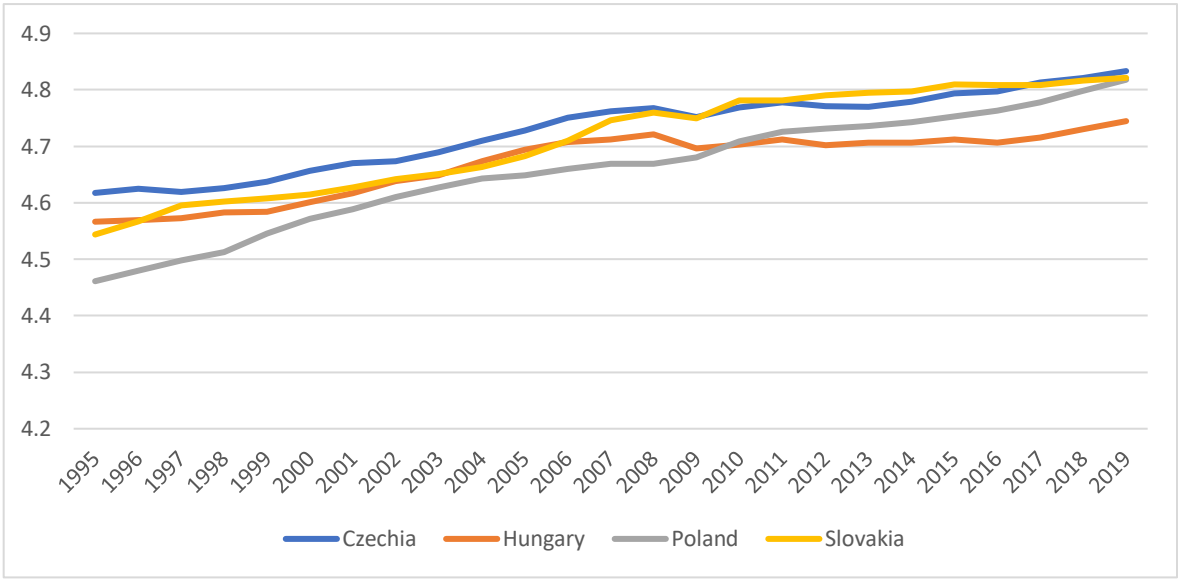
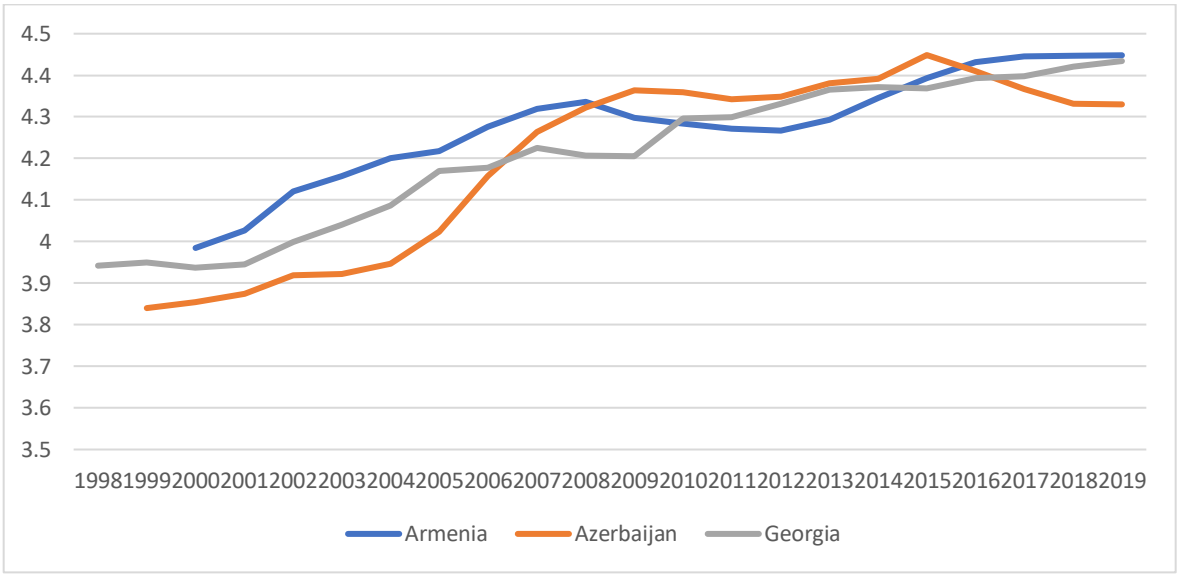


Figure 1B. Labor Productivity Growth (South Caucasia, log (PPP constant 2017 international USD)



Source: *own calculations based on data from Eurostat and the National Statistics Office of South Caucasian countries*

Following the transition shock, a growth recovery resumed in both regions and found its expression in labor productivity. Figure 1 shows that V4 countries experience steady growth in labor productivity. After a short-lasting decline due to the Global Financial Crisis

(GFC), productivity growth recovered, but it stayed slow for a longer period in Hungary. Productivity growth until the mid-90s is accompanied by a decline in employment. It can be said that labor shedding as a part of the firm restructuring was one of the main factors for productivity growth in this period. Since the late 90s, modernization of the production capacity has become a driver of productivity growth. The pace of productivity growth in South Caucasia has been higher than in V4. The first reason for the high growth rate is capacity utilization after the economic collapse of the transition shock. As they achieved macroeconomic stability, economic liberalization, and some extent of the market institutions and found their place in the new economic system, these countries utilized their idle capacity. Although the statistical data's accuracy for the transition's early years is questionable, table 1 can give an overall picture of the massive output loss in South Caucasia. These countries approximately lost nearly half of their national output in the early 90s, and following recovery of the lost output spurred a higher pace of productivity growth. Secondly, productivity growth in South Caucasia started from a lower level than in the V4 countries. According to the economic convergence theory, the pace of growth is higher at the lower level of development. Lastly, the external environment in the form of the favorable term of trade, global technological innovations, and ease of access to finance in the 2000s has been favorable for the economic growth in the CIS countries, including South Caucasia (Iradian 2009). However, after the oil-born currency crisis in 2015, productivity declined in Azerbaijan for the following years.

A higher degree of the productivity gap within the domestic economy indicates underdevelopment (Rodrik and MacMillan 2011). Overall, the productivity gap in the V4 countries is narrower than in South Caucasia (Table 2). The existence of the large productivity gap implies the possibility of increasing overall productivity by channeling resources from the low marginal productivity sectors to higher ones. V4 countries achieved narrowing productivity gap. The persistence of the highest agricultural employment with the lowest productivity in South Caucasia produces a considerable productivity gap. In South Caucasia, Armenia seems the most successful in reducing productivity gaps. Contrastingly, the productivity gap expanded in both Azerbaijan and Georgia. A remarkable growth in agricultural productivity stands for a reduced productivity gap in

Armenia, while its laggardness is one of the main reasons for the increased productivity gap in Azerbaijan and Georgia.

Table 2. Productivity Diagnosis (Productivity, PPP constant 2017 international USD)

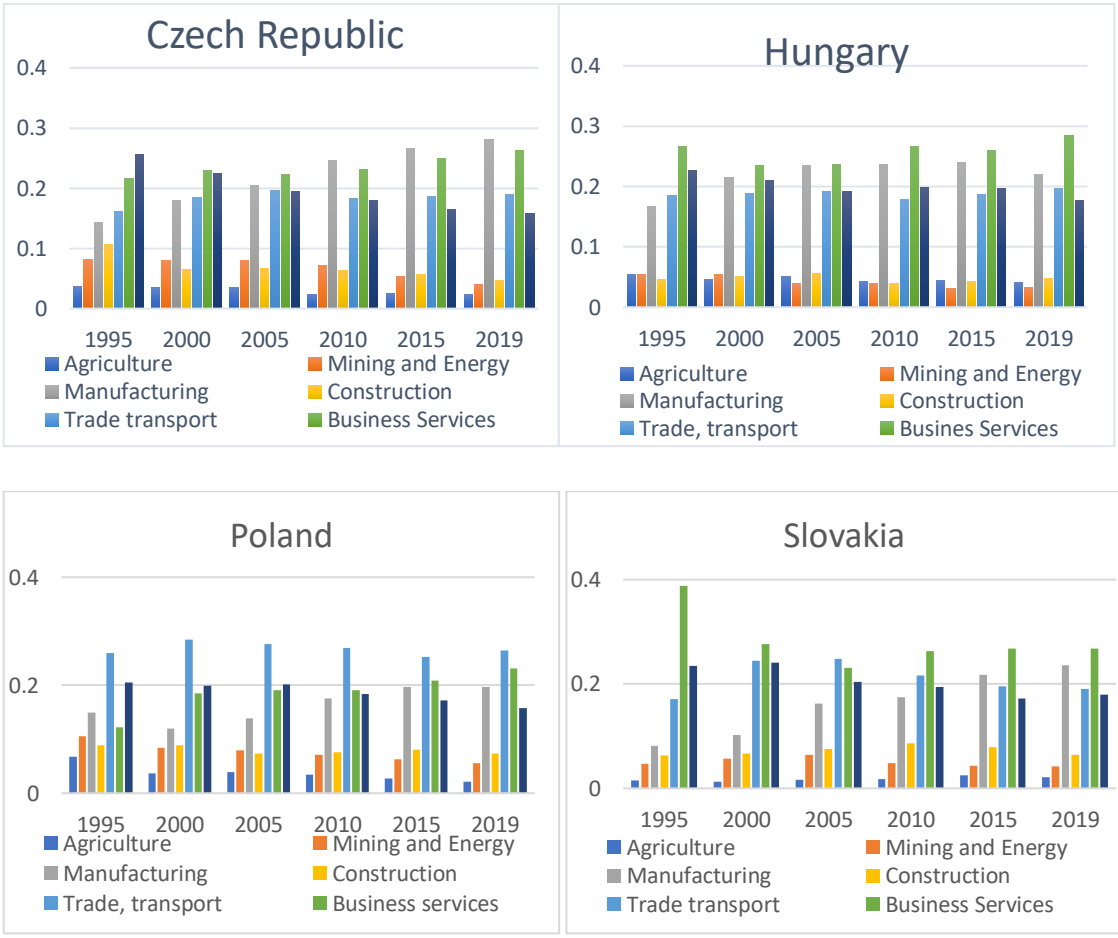
	Highest productivity		Lowest Productivity		Productivity Gap	Coeff. of Variation of log of Sectoral Productivity
	Sector	Labor Productivity	Sector	Labor Productivity		
V4						
Czechia						
1995	M and E	93445	Manuf	22189	4.2	0.049
2019	Business	117110	Construc	42909	2.73	0.026
Hungary						
1995	Business	114495	Agrc	23644	4.84	0.048
2019	M and E	97482	Construc	34862	2.79	0.025
Poland						
1995	M and E	72366	Agrc	8862	8.16	0.097
2019	Business	119444	Agrc	15141	7.89	0.077
Slovakia						
1995	Business	144615	Agrc	5350	27.03	0.179
2019	M and E	143534	Agrc	46762	3.07	0.031
South Caucasia						
Armenia						
2000	Business	35159	Agrc	3932	8.94	0.11
2019	Business	85837	Agrc	16687	5.14	0.064
Azerbaijan						
1999	M and E	96815	Agrc	3387	28.58	0.191
2019	M and E	495654	Agrc	5992	82.72	0.314
Georgia						
1998	Constr	32209	Agrc	5614	5.73	0.059
2019	Business	63846	Agrc	5232	26.01	0.137

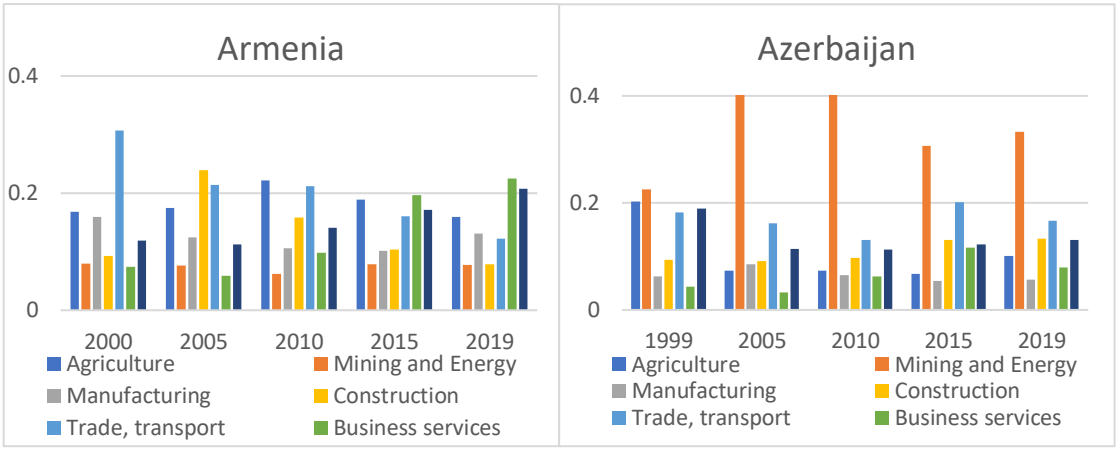
Source: *own calculations based on data from Eurostat and the National Statistics Office of South Caucasian countries*

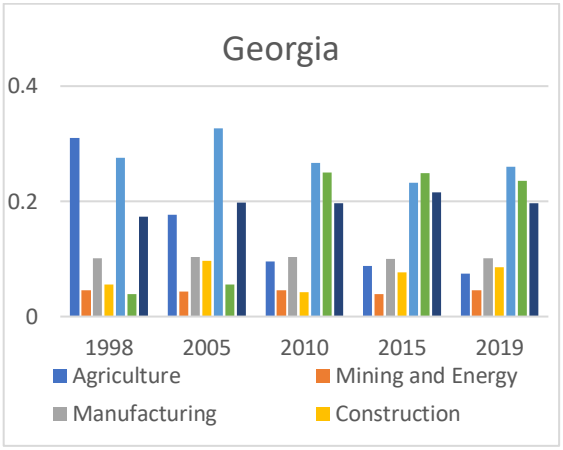
Dynamics of outputs by sectors show that the share of the agricultural output declined in all countries except Armenia. Congruent with their higher level of development, agricultural output is a smaller part of the total output in V4. Another non-modern sector,

Mining and Energy output share diminished in V4. The South Caucasian countries did not experience shrinkage of share of the Mining and Energy output. In the heyday of the oil boom of the 2000s in oil dependence in Azerbaijan, its share climbed to over 45 percent and stays over 30 percent now. Progressive sectors like manufacturing and business service output expanded in the V4 countries. The expansion speed of the manufacturing output share is impressive in Slovakia and the business services in Poland.

Figure 2. Sectoral Distribution of Output







Source: *own calculations based on data from Eurostat and the National Statistics Office of South Caucasian countries*

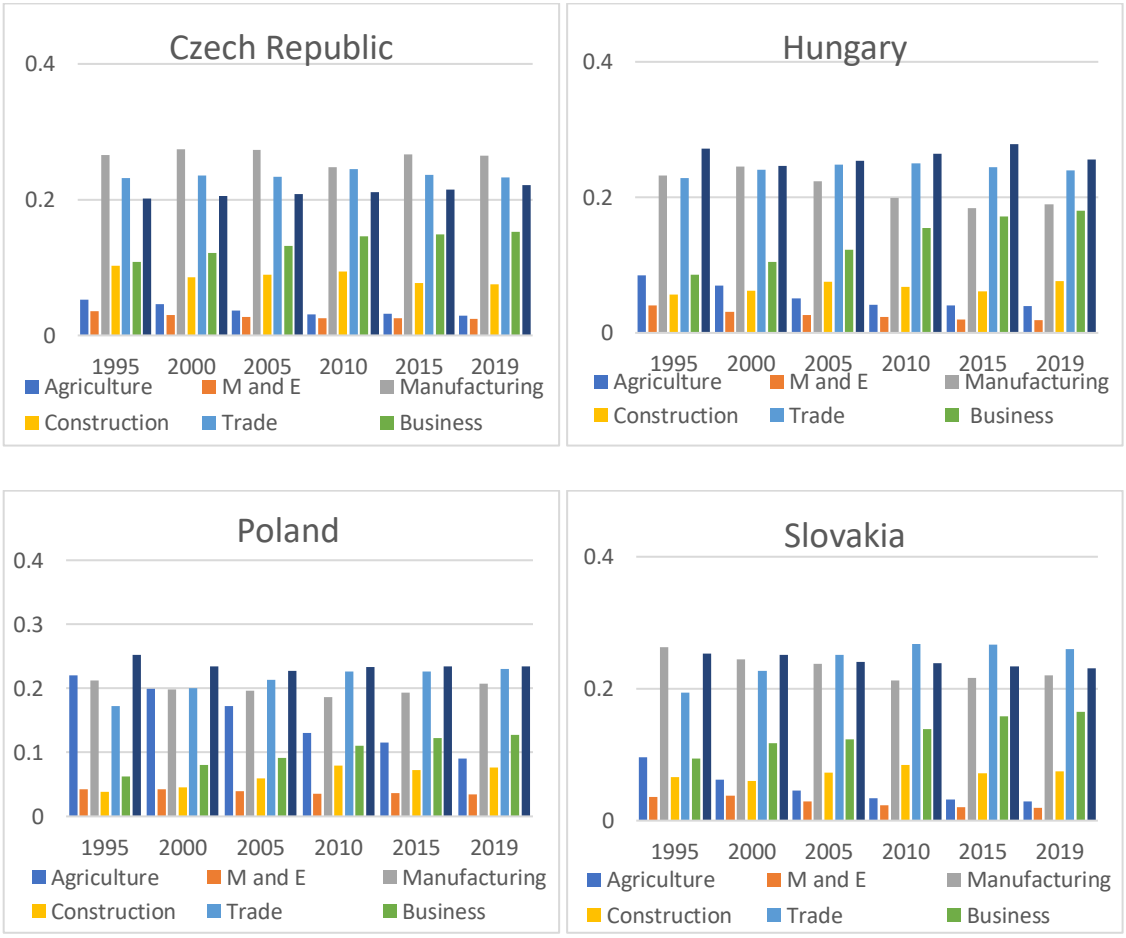
There is no noticeable change in the share of the manufacturing output in South Caucasia, and its share is the lowest in Azerbaijan. The expansion of the business service output share is impressive in Armenia and is close to the V4 average. However, the business service sector is far behind other countries in Azerbaijan.

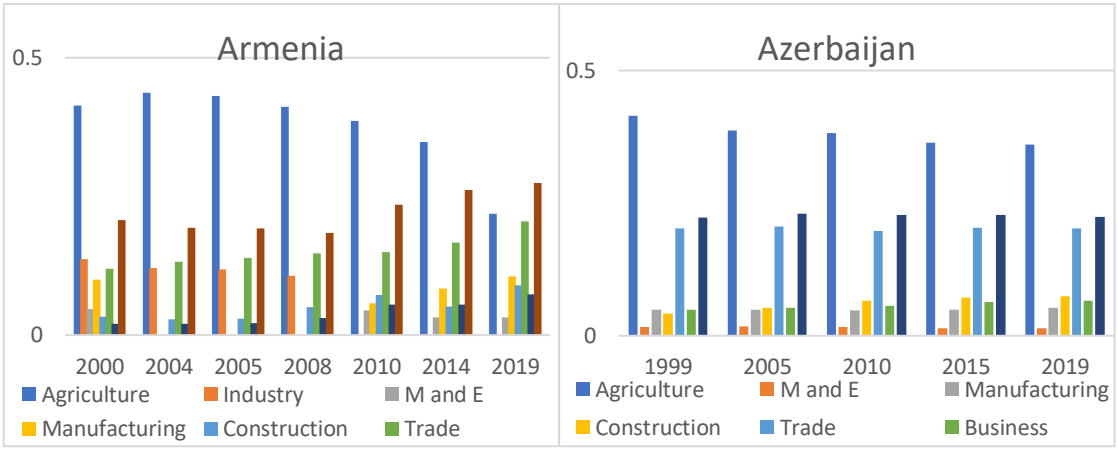
The share of employment in Agriculture, Mining and Energy was already minor in V4 (except agricultural employment in Poland) in 1995, and it shrank. The share of agricultural employment has been considerably higher in South Caucasia at over 35 percent on average. In the economic turmoil of the early transition, the South Caucasian economies were not able to create jobs for the massive number of fired workers, and governments could not provide social assistance. Therefore, subsistence agriculture became the last resort of employment. Meanwhile, Armenia could reduce agricultural employment from 42

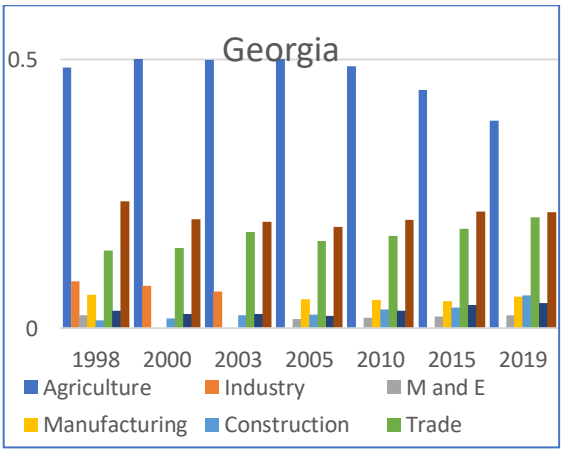
percent to 22 percent. It is still over 35 percent in Azerbaijan and Georgia. The extremely low level of agricultural productivity in these countries indicates the existence of hidden unemployment in agriculture, and channeling the excess labor to the higher productivity sector can improve their overall productivity.

A huge inflow of foreign capital in the manufacturing sector in V4 protected employment in this sector. Its share is over 20 percent, higher than the OECD average.

Figure 3. Sectoral Distribution of Employment







Source: *own calculations based on data from Eurostat and the National Statistics Office of South Caucasian countries*

Only Armenia`s manufacturing employment is noticeable at 10 percent in South Caucasia, it is around 5 percent in Azerbaijan and Georgia, which is significantly lower if we consider their industrial legacy from the socialist period and the level of their economic development. On average, employment in business services increased from below 10 percent in 1995 to above 15 percent in V4 economies. Its share was 2 percent in Armenia, 3 percent in Georgia, and 4.9 in Azerbaijan at the beginning of the period. Its share multiplied in Armenia and reached 7 percent, while it increased slightly in Georgia and Azerbaijan.

3.3. Structural Change and Productivity Growth

One of the sources of the increase in overall productivity growth in an economy is *within sectors* productivity growth which occurs via the accumulation of capital,

technological progress, and minimization of inefficiencies. The second way of increasing overall productivity is the *movement of* labor from the low productivity to the higher productivity sectors. The Shift Share Analysis (SSA) is a widely used and convenient method to measure the effect of the sectoral reallocation of labor on productivity (Timmer and Szirmai 2000; Peneder 2003; Rodrik and Macmillan 2011). Havlik (2005; 2014) and Kuusk, Staehr, and Verblane (2016) used the traditional SSA (static and dynamic) to assess the effect of the structural change on productivity in Central Eastern Europe. Their methodological approach is successful in estimating the total effect of the structural change on productivity growth, but it can't give an accurate estimation of the effect of each sector to the structural change. To understand the deficiency of the convenient SSAs, I introduce below the formulas they used and then explain them.

Static Shift Share Analysis

$$L_p=\sum S_{t-k,i}\Delta L_{p,i}+\sum L_{p,i}\,\Delta S_{i,t} \qquad (1)$$

Dynamic Shift Share Analysis

$$L_p=\sum S_{t-k,i}\Delta L_{p,i}+\sum L_{p,i}\,\Delta S_{i,t}+\sum \Delta S_{i,t}\,\Delta L_{p,I} \qquad (2)$$

The L_p and the L_{pi} are total productivity and sectoral productivity. The S_i is the share of the employment of sector *i* in the total employment, and Δ is the difference in employment share and labor productivity in sector *i* between *t-k* and *t*. The first term is the *within-sector* growth effect. The second term in the Static SSA and Dynamic SSA stands for the *static shift effect.* The third term in Dynamic SSA is the *dynamic shift effect* which represents the contribution of the concurrent change in productivity and employment in each sector on overall productivity. According to the traditional SSA, any sector experiencing employment expansion with above zero productivity level contributes positively to the structural change effect and negatively in the opposite case. For example, the expansion of agricultural employment contributes to productivity growth which does not have any meaningful interpretation. According to the dynamic SSA, a sector experiencing productivity growth has a positive dynamic shift effect on productivity growth. Again, expansion of the lowest productivity sector, such as agriculture which experiences productivity growth, can't be accepted as the positive effect of the structural

change on economic growth. The main deficiency of Static and Dynamic SSA is that reference of change in productivity level in a sector is itself; there is no estimation of the contribution of the individual sector in reference to productivity in other sectors. The effect of the movement of labor on aggregate productivity depends on whether labor is reemployed in a sector with higher productivity than the sector in which it left. Reinsdrof and Yuskavage (2010) suggest that an economically meaningful interpretation of the labor reallocation effect can be attained by measuring each industry`s productivity deviation from average productivity. They introduce the CSLS [1]method for this estimation.

$$L_p = \sum S_{t-k,i} \Delta L_{p,i} + \sum (L_{i,t} - L_{a,t})\, \Delta S_{i,t} + \sum ((L_{i,t} - L_{i,t-k}) - (L_{a,t} - L_{a,t-k}))\, \Delta S_{i,t} \quad (3)$$

The *within-sector* effect is the same as in traditional SSA, in *static reallocation effect* terms, the labor productivity in sector *i* is replaced with difference between the labor productivity in sector *i* and average productivity. In dynamic *reallocation effect* terms, a change in the labor productivity in sector *i* is replaced with the difference between a change in labor productivity in sector *i* and change in average productivity.

Table 3. Sectoral Coverage

Sectors	**Sectors**	**ISIC REV 3**
Agriculture	Agriculture	A+B
Energy and Mining	Public Utilities (Electricity, Gas, and Water) and Mining and Quarrying	C+E
Manufacturing	Manufacturing	D
Construction	Construction	F
Trade Food Accommodation	Wholesale and Retail Trade, Hotels and Restaurants Transport, Storage and Communications	G+H+I
Business services	Finance, Insurance, Real Estate, and Business Services	J+K
Non-market services	Community, Social, Personal, and Government Services	O+P+Q+L+M+N

[1] Authors named this method Center for Study of Living Standards (CSLS) at the conference hold by this organization in 2014

The Database of the CSLS SSA entails sectoral and aggregate labor productivity for the V4 and South Caucasian countries. Productivity dataset for the V4 countries is available from 1995. For the South Caucasian countries, data is used from the National Statistics Offices, and the International Labor Organization, and available data for all of them starts from 1999. Total labor productivity is disaggregated into the seven sectors, which are given in Table 3**.** To have comparability of data across countries, it is converted to the domestic currency value added at 2015 price into the 2015 PPP exchange rate.

Overall, within-sector growth is the main source of productivity growth in countries of both regions. However, the weight of the reallocation effect on total productivity growth is heterogeneous across countries. Poland is a leader in V4 and Georgia in South Caucasia. Respectively, the share of static and dynamic shifts together in the aggregated productivity growth is 28.9 and 24.4 percent in Poland and Georgia. The role of structural change in productivity growth is nearly double of Rodrik and Macmillan`s finding for the Asian countries in the 1990-2005 period. In addition to the expansion of the share of employment in the higher value-added sector, dynamic productivity growth in the expanding high-value sectors is behind such a bigger contribution of the labor reallocation to the productivity growth in Poland. The expansion of employment in the higher value activities has a considerable reallocation effect on productivity growth in Hungary and Slovakia, but the sluggish rate of the productivity growth in these sectors leads to a negative dynamic shift effect. The tiny reallocation effect in Czechia is congruent with its small productivity gap. This effect is smallest in Azerbaijan, and it is incompatible with its level of economic development, higher level of the productivity gap, and prevalence of the low productivity agricultural employment. Incoming oil revenue eased pressure on the Azerbaijan government to implement the economic development policy, which is in line with Rodrik and Macmillan`s finding. Additionally, a huge influx of oil revenue into the Azerbaijan economy caused a Dutch disease (Hasanov 2013 and Niftiyev 2021). Via the fiscal expansion channel, the low-value non-tradable sector expanded, but currency appreciation resulted in a decline in the tradable goods and services.

Table 4. CSLS Shift Share Analysis

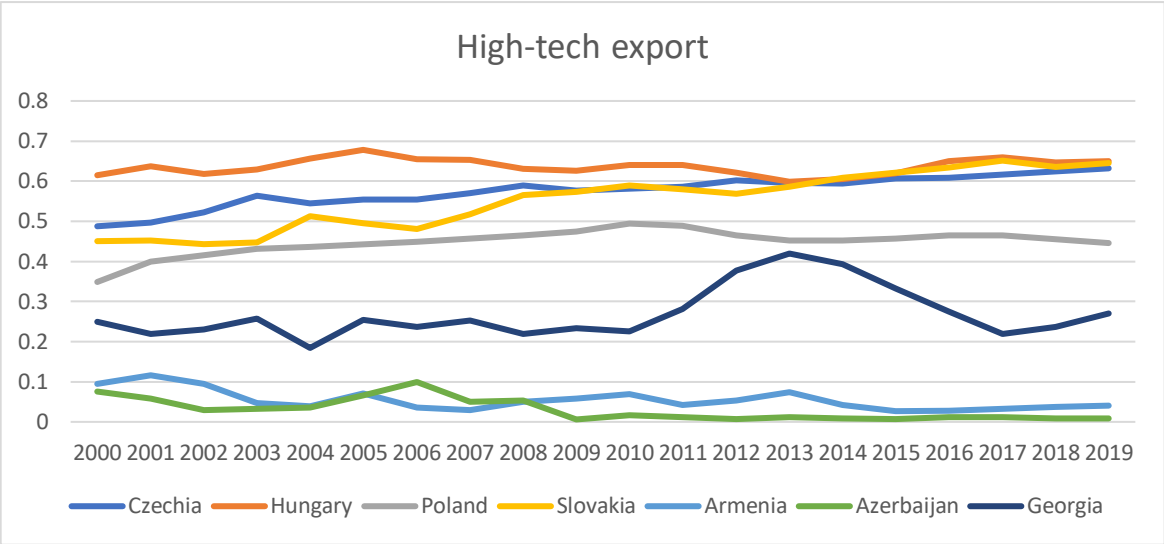
Countries	Period	within	static shift	dynamic shift	total
Czechia	1995-2019	2.35	0.16	0.06	2.57
Hungary	1995-2019	1.85	0.85	-0.70	2.00
Poland	1995-2019	3.62	0.92	0.55	5.09
Slovakia	1995-2019	3.36	1.19	-0.97	3.58
Armenia	2000-2019	8.02	2.36	-0.88	9.5
Azerbaijan	1999-2019	9.46	0.27	0.23	9.96
Georgia	1998-2019	7.21	1.24	1.09	9.54

Source: *own calculations*

Productivity growth from the reallocation effect of the manufacturing sector is negligible in both regions. The V4 countries have a specialization in the production of manufacturing goods dating back to the heyday of socialism, they have already achieved manufacturing employment like the developed countries in the last decades of socialism. Therefore, there is no further possibility of increasing employment in the manufacturing sector. The South Caucasian countries lost a significant part of their manufacturing industry to the transition shock. Despite having a large pool of cheap labor reserve in the agricultural sector, these countries didn't experience an expansion of manufacturing employment. The share of employment in manufacturing stagnates at 5 percent in Azerbaijan and Georgia; it is around 10 percent in Armenia which is still below its potential as well as its productivity being lower. The inability to integrate into the GVC is the main reason for the small share of manufacturing employment in South Caucasia. In contrast to the absence of the reallocation effect on productivity growth, sectoral productivity growth in the manufacturing sector is the main driver of the *within-sector* productivity growth in the V4 economies, and it has the highest productivity growth. The manufacturing sector employs around 20 percent of the labor force, but it stands for 34-54 percent of the *within-sector* productivity growth in the V4 countries (Table 5A). Inheritance of the complex industry, skilled labor force, favorable business environment, and government support attracted foreign capital into the manufacturing industry. Capital investment and technological and organizational development by the MNCs has been the driving force of productivity growth of the manufacturing sector in the V4 economies. *Inferior quality of even low-tech intense manufacturing products was inherent in the socialist period. MNC-led modernization had a huge contribution to the improvement of the quality of manufactured goods*. In addition to

increasing the productivity of the existing production, V4 countries have been successful in upgrading in the manufacturing sector via the FDI. Damijan, Kostevc and Rojec (2013) state that V4 economies upgraded from medium to high-tech exports via the MNCs. In addition to the inability to expand, the manufacturing sector`s contribution to within-sector productivity growth has not been impressive in South Caucasia. The table shows that high-tech export is significantly higher in V4 countries than in South Caucasia. The share of high-tech export increased moderately in Czechia and Slovakia while it stagnated in Hungary. Hungary privatized manufacturing companies to MNCs in the early years of the transition and reached its peak until 2000, and the table does not show the development of the value of Hungarian export prior to 2000. High-tech export is significantly low and has a declining trend in Armenia and Azerbaijan. While in Georgia, its share is considerably high among South Caucasian countries. Mineral export in Armenia and oil export in Azerbaijan would undermine the expansion of high-tech export in these countries. Except for Georgia, productivity growth in the manufacturing sector has been lower than the average productivity growth in Armenia and Azerbaijan. In general, the productivity growth of the manufacturing sector in South Caucasia mainly requires an investment in capital and technology, and integration into the GVCs. Small economies at this level of economic development can integrate their manufacturing industry into the GVCs via the MNCs. As in other CIS countries, the FDIs don't invest outside of the commodity, energy, and metallurgy sectors (Iradian 2007). Armenia is famous for its liberal trade policy, but still, it is successful in attracting FDIs only in the utility and energy sectors (Mitra 2007). Azerbaijan attracts FDIs mainly in the oil sector. Since the Rose Revolution, Georgia sticks to the policy of attracting FDIs and integrating into the EU. Nevertheless, Georgia`s more liberal business environment, tax concession, and Associative EU membership attracted the FDIs, but they still concentrate in the construction, communication, transport, and real estate sector. It seems that the accumulation of the FDIs in the higher value-added, including the manufacturing sector and its integration to the GVC, requires a broader government approach than ease of starting business and tax concessions.

Figure 4. High-tech export (percentage of GDP)



Source: World Bank, World Integrated Trade Solutions

Business sector has one of the highest productivity levels, and its expansion contributed significantly to overall productivity growth in the V4 economies. Although Poland is behind other V4 economies, the expansion of employment in the business services sector is the main driver of the static effect of the reallocation of labor on productivity growth (Table 5A). However, the dynamic shift effect of the business service sector is not homogenous across these countries. The positive dynamic shift effect of the business service activities is considerable in the Czech Republic and Poland, while the decline in the productivity level of the business services produced a negative dynamic shift effect in Hungary and Slovakia. Still, the total reallocation effect of the business services is positive in the latter countries. In South Caucasia, Armenia is distinguished for both the higher static and dynamic effect of business services on productivity. The productivity of the business service sector in Armenia is four-fifths of V4 average, but it is significantly lower in Azerbaijan. The share of employment in the business service sector in South Caucasia is still one-third of the V4 average.

Table 5A. Detailed decomposition of labor productivity growth in V4

Czech Republic			
Sectors	within sector	static shift	dynamic shift
Agriculture	0.055	0.175	0.045

M and E	0.027	-0.372	0.170
Manufacturing	0.543	0.011	-0.037
Construction	-0.001	-0.029	1.242
Trade, Transport, Food	0.254	-0.004	0.001
Business Services	0.153	1.092	0.564
Non-market Services	-0.031	0.127	-0.985
Hungary			
Sectors	within sector	static shift	dynamic shift
Agriculture	0.168	0.074	-0.107
M and E	0.109	-0.036	-0.093
Manufacturing	0.509	0.054	-0.124
Construction	0.017	-0.018	-0.04
Trade, Transport, Food	0.209	-0.01	-0.005
Business Services	-0.134	0.922	-0.659
Non-market Services	0.122	0.013	-0.027
Poland			
Sectors	within sector	static shift	dynamic shift
Agriculture	0.053	0.393	0.991
M and E	0.056	-0.053	0.004
Manufacturing	0.341	0.007	-0.007
Construction	-0.008	0.228	-0.405
Trade, Transport, Food	0.21	0.128	-0.071
Business Services	0.147	0.281	0.414
Non-market Services	0.201	0.015	0.074
Slovak Republic			
Sectors	within sector	static shift	dynamic shift
Agriculture	0.135	0.189	-0.079
M and E	0.118	-0.017	-0.124
Manufacturing	0.535	0.098	-0.142
Construction	0.051	-0.001	-0.009
Trade, Transport, Food	0.116	-0.026	-0.105
Business Services	-0.119	0.751	-0.573
Non-market Services	0.163	0.005	0.032

Source: *own calculations*

Development of the service sector was ignored during the socialist period, and a significant part of the business service was non-existent at that time. Business services emerged and expanded as these countries changed their economic system to a market economy Again, the FDI played an important role in the development of the business

Table 5B. Detailed decomposition of labor productivity growth in South Caucasia

Armenia			
Sectors	within sector	static shift	dynamic shift
Agriculture	0.489	0.292	0.263
M and E	0.154	-0.026	-0.27
Manufacturing	0.122	0.009	-0.001
Construction	-0.006	0.21	-0.68
Trade, Transport, Food	-0.069	0.264	-1.242
Business Services	0.074	0.299	1.013
Non-market Services	0.235	-0.048	-0.083
Azerbaijan			
Sectors	within sector	static shift	dynamic shift
Agriculture	0.078	0.614	1.969
M and E	0.464	-0.487	-1.998
Manufacturing	0.05	0.028	-0.005
Construction	0.068	0.887	0.801
Trade, Transport, Food	0.166	-0.001	-0.003
Business Services	0.067	-0.038	0.253
Non-market Services	0.106	-0.002	-0.016
Georgia			
Sectors	within sector	static shift	dynamic shift
Agriculture	-0.016	0.16	1.091
M and E	0.070	0.003	0.007
Manufacturing	0.178	-0.009	-0.026
Construction	0.008	0.555	-0.341
Trade, Transport, Food	0.224	0.253	-0.031
Business Services	0.153	0.013	0.301
Non-market Services	0.384	0.025	0.001

Source: *own calculations*

service activities in the V4 countries. In the first stage, the FDI targeted to serve the domestic economy in the 1990s, and privatization of the banking sector to the MNCs was part of this process. In the second stage, which started in the early 2000s, the MNCs outsourced their business services to the V4 economies (Sass and Fifekova 2011). The offshoring services activities spurred the integration of the service sector of the V4 countries into the GVC, the destination of the service exports from these countries is the EU market. Expansion of the business services resulted in a decline in service imports and a rise in its exports. For example, Czechia and Hungary increased the domestic content of business services, while the business services exports increased in Poland and Slovakia.

Especially, Poland has become one of the largest providers of advanced business services (Melikhova, Bazo, Holubcova, and Camacho 2015; Klimek 2018). As a part of the transition from the planned to market economy, the business services sector experienced development in South Caucasia, but its share is still small. In the case of the V4 countries, the competitive manufacturing sector (which is modernized by MNCs) is one of the important factors for ongoing development in business services. From this token, the lack of the production sector demanding outputs of the business services can be considered impeding factors on the development of advanced business service activities in South Caucasia. Armenia had a long experience in computer technology during the soviet era; it gave an opportunity to benefit from the exports of ICT services. Armenia is a leader in both regions, with a 6 percent share of the ICT exports (Atlas Economic Complexity). There is a recent tendency to offshore some segments of the ICT activities to CIS countries, and Georgia benefited from it. However, the share of exports of the transport services is large, which can be explained by its geographic position to connect Asia with the Black Sea and transit oil and gas of the Caspian base. Despite the rise of exports of the lower value tier of the ICT services in Armenia and Georgia, other business service activities are outside of it. Again, the inability to join the GVC of the service production is another barrier to the development of the business services sector in South Caucasia.

Contraction of the low-value traditional sectors is another side of the positive effect of the structural change on economic growth, and agriculture stays as a conventional representation of the low-value activity. Collectivization in the socialist period resulted in an overemployment in the agricultural sector. Nonetheless, V4 countries started land reforms in the early 1990s. In addition to the privatization, the provision of social assistance in the V4 region allowed subsistence agricultural employment to decline and the rise of large-scale farming, which resulted in the contraction of agricultural employment and the rise of productivity (Swinnen and Vranken 2010). A significant part of the labor shift from agricultural activity happened before 1995 in the V4 countries. Therefore, the SSA can't fully cover the labor reallocation effect of the agricultural sector on productivity growth because its starting period is 1995. The agricultural sector dominates both the static and dynamic effect of labor reallocation on productivity growth in Poland. The share of agricultural employment was higher at over 22 percent in 1995, and its productivity has

been considerably low. So, the movement of more than half of the workers from low-value agriculture to the more productive sectors during the last 25 years benefited Poland in the form of productivity growth. A high rate of agricultural employment dates back to the historical dominance of the agricultural sector by small farms. Poland still has the highest share of agricultural employment and lowest productivity among the V4 economies. Poland can increase total productivity by further channeling the labor force from agriculture. Like developed countries, other V4 economies already had a low level of agricultural employment. Therefore, a possible small contraction of agricultural employment did not have a considerable reallocation effect on productivity growth. The contribution of the contraction of agricultural employment to the reallocation effect is considerably large in South Caucasia. The share of the agricultural employment in the collective farms was high at 40 percent in the soviet era. Its high rate persisted during the first decade of the transition period. Privatization turned the kolkhoz workers into the owners of a piece of land. The lack of social assistance didn't allow the subsistence agricultural workers to leave agriculture. The scarcity of employment outside agriculture was another hindering factor in the contraction of agricultural employment. Nevertheless, rapid economic growth since the late 1990s created employment opportunities in the trade and other personal service sectors. Meanwhile, these countries experienced a reduction in agricultural employment, and Armenia`s achievement is the greatest; its agricultural employment halved. However, the biggest contribution to the reallocation effect of agriculture was observed in Azerbaijan. Advanced sectors, such as manufacturing and business services, did not experience development; therefore, a slight contraction of the lowest productivity agricultural employment stayed the driver of the reallocation effect in Azerbaijan. Also, in Georgia, agricultural productivity persisted at an extremely low level, and the shrinkage of employment in this low-productivity activity produced the biggest reallocation effect. Overall, a large pool of employment in agriculture in South Caucasia creates an opportunity to increase productivity by shifting them into higher-value activities.

Except for Poland, agriculture achieved above-average productivity growth in the V4 countries, and Slovakia`s performance was impressive at 31 percent. However, the share of agricultural employment is small in these high-performing countries. Therefore, the contribution of agriculture to the national *within sector* productivity growth is not

noticeable. Agricultural productivity is noteworthy in Armenia. Regarding the higher share of agricultural employment, agricultural productivity growth is half of Armenia's within-sector productivity growth.

Trade, food, and accommodation (TFA) - another segment of the underdeveloped service sector during socialism, expanded in the capitalist system. This sector is one of the largest employment sectors, and changes in it can have a visible effect on labor productivity. Expansion of this sector mainly occurred until 1995 in the Czech Republic and Hungary. Therefore, it didn't have a noticeable reallocation effect on productivity. But Poland and Slovakia experienced a further expansion of employment in this sector. The TFA had above-average productivity. Therefore, its expansion contributed positively to the static reallocation, lack of dynamic productivity growth resulted in a negative dynamic shift effect in this sector. Both below average and lack of dynamism of the productivity growth resulted in a small negative static and dynamic effect of this sector on productivity. Its employment share expanded in Armenia but did not change in Azerbaijan. As in Poland, the TFA had above-average productivity, and its expansion caused a positive static shift effect, but its sluggish growth rate negated this effect. Overall, this sector is labor-intensive and has limited productivity growth capacity. Therefore, it should not be considered an engine of growth.

The Mining and Energy sector is capital intensive, generally has higher productivity, and has no linkage with the remaining economy. It employs a tiny share of the labor (1-3 %) and does not have the potential to expand further. Therefore, focusing on its effect on overall productivity growth does not make sense. However, its prevailing share in the reallocation effect and within growth in Azerbaijan necessitates paying attention to it. First, a contraction of the employment share of the M&E sector from 1.6 percent to 1.4 percent has a big negative reallocation effect on productivity. At the same time, it stands for 46 percent of the within-sector productivity growth. The main explanation is the galloping productivity growth in this high-productivity sector. Secondly, the lack of diversification of other sectors is another factor for the dominance of the M&E sector in the productivity growth of the Azerbaijan economy.

The construction sector has a visible reallocation effect only in Poland among the V4 countries. Expansion of employment in this above average productivity sector causes a positive static shift effect, but its declining productivity growth negates it in the form of a negative dynamic shift effect. The same scenario occurs in Armenia and Georgia. But both effects are large and positive in Azerbaijan. The share of non-market service employment is high at over 20 percent in both regions. This sector is not exposed to market pricing, and its productivity measurement is questionable, which is outside of this thesis. In general, non-market services are a collective consumption of society in the form of different public goods. Therefore, evaluating its direct contribution to productivity growth cannot produce meaningful economic results.

Most developing and emerging economies have experienced premature deindustrialization since the 90s. However, V4 countries could preserve their manufacturing production and employment, which played a significant role in economic growth in the post-socialist era. EU integration and hosting of MNCs have been decisive for preserving and developing the industrial complex in these countries. Development of the manufacturing sector could open opportunities to increase the learning and innovational capacities in the manufacturing sector and disseminate the technologies into the remaining economy. However, MNC domination of the manufacturing sector could limit these channels of economic development. Slovakia has the least performance in upgrading the value structure of the manufacturing sector; assembling is still the main part of its manufacturing activity. More developed Czechia has more diversified and relatively higher value-added manufacturing production activities. The relatively larger size of Poland enables them to be more powerful vis-à-MNCs in determining the direction of development of the manufacturing sector and diversifying its economy. Low and medium value-added segments of manufacturing production still persist in Hungary. However, it achieved full stages of value chains in some sectors, such as the pharmaceutical industry. Contrastingly, South Caucasian countries experienced an acute deindustrialization and lost a significant part of their industrial base built in the socialist period. Armenia is distinguished for a relatively higher level of employment in manufacturing, but it mainly persists in low-value-added informal sectors. Manufacturing is recognized for its productivity dynamism. However, productivity growth in this sector has been sluggish in Azerbaijan and Armenia.

The main reason for the deindustrialization and underdevelopment of the manufacturing sector in South Caucasia is the inability to modernize and integrate their industry into global production. As small economies, the MNCs could play an important role in the modernization and development of the manufacturing sector; however, they could not be able to attract foreign capital in this sector. Business services expanded in both regions, but the V4 region is significantly ahead of South Caucasia. Development of the manufacturing sector increased the demand for high-quality business services in V4 countries. The lack of a strong industrial base could be an important factor behind the underdevelopment of the business services sector in South Caucasia. Access to the EU market enabled the export of business services from V4 countries, and Poland became one of the top exporters of business services, while Czechia and Hungary reduced the import of business services by increasing their domestic production. Armenia and Georgia would be able to increase the export of ICT services despite it being mainly in the lower value segment of this sector. Higher levels of employment in agriculture persist in South Caucasia. Only Armenia significantly reduced its share in total employment and increased agricultural productivity. Employment in agriculture has been moderately higher in Poland among V4 countries, while others have a similar level to advanced countries.

3.4. Econometric Analysis of Structural Change and Economic growth

The SSA analysis is an accounting method that can only measure structural change's direct effect on economic growth. But the advanced sectors have an indirect effect on the overall economy in the form of technological spillovers. An econometric approach enables the evaluation of the spillover effects from the progressive sectors on economic growth.

Two structural variables are used for capturing both advanced services and manufacturing sectors. The share of the business services output in the total output represents the structural variable for services. The share of the higher tech manufacturing goods in the total export stands for the structural variable of manufacturing. The exports of machinery and equipment, transportation vehicle and their parts, and chemical products present the higher tech manufacturing sectors.

$$BSO_i = \frac{Output^{business\ services}}{Output^{total}} \qquad (4) \qquad HTM_i = \frac{HTM_{exports}}{Total_{exports}} \qquad (5)$$

The models are described in the following equations

$$\Delta Y_{i,t} = \alpha + \beta_1 INV_{i,t} + \beta_2 RENT_{i,t} + \beta_3 \frac{Y_{i,t}}{Y_{USD}} + \beta_4 HTM_{i,t} + \mu_{i,t} \quad (6)$$

$$\Delta Y_{i,t} = \alpha + \beta_1 INV_{i,t} + \beta_2 RENT_{i,t} + \beta_3 \frac{Y_{i,t}}{Y_{USA}} + \beta_4 BSO_{i,t} + \mu_{i,t} \quad (7)$$

ΔY is the annual GDP growth rate and represents the dependent variable. The INV stands for investment and is a percentage of the fixed capital formation in GDP. The worker remittances in Armenia and Georgia and oil exports in Azerbaijan are important sources of their foreign currency and contribute to their economic growth (Ahmadov 2022). Therefore, the RENT variable is used as a sum of the percentage of the remittance and oil rent in GDP. The $Y_{i,t}/Y_{USA}$ is ratio of the per capita GDP of country *i* at time *t* at 2015 PPP to the per capita GDP of USA at 2015 PPP. Convergence theory states that at the lower level of economic development, countries experience faster growth. The South Caucasian countries are at a lower stage of the development than the V4 countries, and this variable catches the convergence effect. The HTM and BSO are this model's structural and main interest variables. The GDP growth rate, GDP per capita, fixed capital formation (INV), remittance, and oil rent are from the World Bank Development indicators. The data for the high-tech export is from the World Bank, and World Integrated Trade Solutions, the business service output data is from the Eurostat (V4) and National Statistics Office of the South Caucasian countries.

In both models, the Fully Modified OLS (FMOLS) is used. One of the main advantages of the FMOLS is its suitability for the panel data with a small sample size, especially in the case of the number of sections being smaller than the number of times, which is the case of this study (N=7, T=20). Furthermore, the FMOLS is a dynamic model. Therefore, it can give a more accurate estimation of parameters. Additionally, in contrast to the OLS, the FMOLS allows cross-sectional heterogeneity, which reduces estimation bias. It considers serial correlation. Lastly, the FMOLS is a dynamic model and can deal with the endogeneity problem. Relying on these advantages, FMOLS is employed in this analysis.

3.4.1. Panel Unit Root Test

The earlier step in the FMOLS analysis is to test the cointegration relations among variables to determine the presence of the long-run relationship. The Panel Unit Root test is the first step before the cointegration test. The assumption of first-generation panel unit root tests is that there is no cross-sectional dependence. Table 6 shows that there is cross-sectional dependence. Therefore, the first-generation unit root tests are not enough to diagnose the stationarity; it is necessary to employ second-generation unit root tests (Mercan and Gocer 2013). The result of Pesaran-CIPS shows that all variables are I (1).

Table 6. Breusch-Pagan LM test (Cross section Dependence tests)

Test	Statistic	Prob.
GROWTH	114.6242	0.0000
HTEX	111.9060	0.0000
BSO	157.55	0.0000
INVESTMENT	76.36	0.0000
RENT	107.87	0.0000
Yi/Y_{us}	350.29	0.0000

Table 7. Panel Unit Root Tests (Assumption of cross-sectional dependence)

Variables		Level	First Difference
Peseran-CIPS	GROWTH	0.000	-3.12***
	HTEX	0.000	-3.05***
	BSO	0.000	-5.92***
	INVESTMENT	0.000	-3.61***
	RENT	0.000	-2.87***
	Yi/Y_{us}	0.000	-2.61***

In both models, Pedroni residuals cointegration tests the existence of the cointegration relations among variables. The within-dimension statistics examine the cointegration among variables on the assumption of the homogeneity of the series, while

between dimension tests, cointegration on the assumption of the heterogeneity of groups. The null hypothesis is that there is no cointegration. Four of the seven statistics reject the null hypothesis in both models. Therefore, there exists cointegration among variables.

Table 8. Panel Cointegration Test

Methods	Within dimension (panel statistics) (homogeneous)		Between dimension (heterogeneous)	
	Test	Statistics Probability	Test	Statistics Probability
Pedroni Residual Cointegration				
Panel v-Statistic	0.36	0.2881	Group rho-Statistic	1.48 0.9318
Panel rho-Statistic	0.71	0.7744	Group PP-Statistic	-9.54 0.0000
Panel PP-Statistic	-2.32	0.0100	Group ADF-Statistic	-4.75 0.0000
Panel ADF-Statistic	-1.99	0.0233		

Methods	Within dimension (panel statistics) (homogeneous)			Between dimension (heterogeneous)		
	Test	Statistics	Probability	Test	Statistics	Probability
Pedroni Residual Cointegration						
Panel v-Statistic	0.55	0.2881		Group rho-Statistic	1.58	0.9433
Panel rho-Statistic	0.75	0.7744		Group PP-Statistic	-7.36	0.0000
Panel PP-Statistic	-3.26	0.0005		Group ADF-Statistic	-3.69	0.0001
Panel ADF-Statistic	-2.76	0.0028				

3.4.2. Results and Discussion

After knowing the cointegrating relationship among variables, the Panel FMOLS is run to assess the long-run relationship between economic growth and explanatory variables in both models. The effect of the investment is positive and significant in both models. Rent also has a positive effect on economic growth. This positive association can be explained by the considerable role of remittances and oil revenue in the economic growth of South Caucasia. The relative income variable shows a negative effect on economic growth in both models. Therefore, it can be said that a considerable part of the higher rate of economic growth in South Caucasia is related to their lower level of starting point. The effect of the high-tech export is positive in both regions, as expected. The business service sector shows a positive association with the economic growth in V4, while it is negative in South Caucasia.

The positive association between the high-tech manufacturing export and GDP growth may support the idea that the manufacturing sector is important for economic growth in V4 and South Caucasia. However, a negative relationship between the business service output and economic growth requires careful explanation. The economic growth in V4 has been accompanied by the development of business services activities. But it did

Table 9A. FMOLS. Model 1

	COEFFICIENT	**T-STATISTICS**
INVESTMENT	32.12***	5.28
RENT	17.9***	6.63
YI/YUS	-12.14***	-8.84
HTEX	3.9***	3.19
HTEX*V4	2.31***	322.67
HTEX*SOUTH CAUCASIA	18.48***	150.94

Table 9 B. FMOLS, Model 2

	COEFFICIENT	T-STATISTICS
INVESTMENT	33.24***	7.74
RENT	15.5***	7.99
YI/YUS	-26.65***	-668.34
BSO	-0.52***	-2.61
BSO*V4	17.01***	197.58
BSO*SOUTH CAUCASIA	-4.49***	-35.53

not happen in South Caucasia. The locomotive of economic growth has been mainly revenue from the sale of resources and inflows of remittances. They contributed to the expansion of the demand in the non-tradable sectors, especially for non-business services. The business services did not benefit as well as did not contribute to the rapid economic growth which occurred in the first decade of the 21st century. Therefore, there is not a positive statistical relation between business services and economic growth in South Caucasia.

3.5. Challenges on the Continuance of Economic Growth in V4 and Caucasian countries

In the background of the integration into the EU, the FDIs drove economic growth and improved the efficiency of the V4 economies, and contributed to upgrading its value structure. Nevertheless, the global financial crisis and post-crisis economic situation questioned the feasibility of FDI-led economic growth. The speed of the economic convergence of V4 with core EU countries slowed down. The FDI and foreign capital financed pre-crisis high-speed economic growth mainly via foreign bank subsidiaries. Such foreign capital-dependent economic growth exposed the V4 countries extremely vulnerable to external shocks. In the time of the crisis, both FDI and financial capital cede to enter their economies. In the pre-crisis period, investment outweighed domestic savings financed by foreign capital. Prolongation of such a situation poses current account threats. In the post-crisis period, domestic savings improved, and the gap between investment and domestic savings narrowed. However, there are still two investment-related problems in the

V4 economies. Firstly, investment is lower than in those countries at the time of graduation from the middle-income to higher income country (Szekely and Kueznel 2021). Therefore, it is necessary to mobilize more resources to channel to investment. Secondly, in the background of the declining FDI investment, the share of the EU transfers in the investment increased in the post-crisis period, which creates an additional external dependence (Ferry 2017).

The lower cost of the qualified workforce has been one of the main factors in attracting FDI into the V4 economies. However, V4 has already exhausted the pool of lower-cost qualified labor. Therefore, the possibility of cost-competitive labor to attract the huge echelon of FDIs diminished (Fabiano, Andrea Enzo, and Mauro 2020). Additionally, the Balkan and East European countries with lower labor cost joined the competition for the FDIs, making it harder to attract additional FDI and keep the cost-sensitive FDIs (Gotz, Elteto, Sass, Vickova, and Zacharova 2020). Last but foremost, economic growth at the cost of the well-being of the workers in the form of lower wages does not underline such growth in its true meaning.

The current trade and production relations of the V4 economies with the EU stuck them in the lower value segments of the advanced sectors. V4 countries as factory economies mainly specialize in the production stage, and the pre-and post-production service activities such as design, R&D, logistics, marketing, etc., stay in headquarters in home economies (Szalavetz 2017; Farkas 2020; Bykova, Grieveson, Grubler, Sass, and Szemler 2021). Continuation of such functional specialization in the lower-value activities doesn’t promise a rosy economic future, and catching up requires shifting into the high-value capture segments of the leading sectors.

Economic growth based on favorable external economic conditions such as the ease of access to finance, commodity boom, and global technological developments exhausted its potential to provide further growth in the South Caucasian countries. Therefore, a new growth model is necessary to upgrade these countries' value structures and technological capacities. As small economies, integration to the GVC via the MNCs can be one of the promising options to upgrade the value of their production structure and converge to the higher income countries. Recently, Chinese companies have been interested in investing in

this region. Additionally, deepening the relations with the EU in the context of the EU neighborhood policy can give an opportunity to attract the MNCs from the EU and integrate the GVC via them. However, Kubina and Jakubiak (2012) conclude that the FDI in the non-resource sector in the CIS countries mainly concentrates on serving the domestic markets and does not have export potential. Additionally, they have limited linkages with domestic companies. Therefore, they don't contribute to the technological advancement of domestic companies in the CIS economies. Therefore, foremost, they should not rely only on the low wage and tax regime; rather, governments should increase both their domestic capacities and human capital in order both to attract foreign capital in the higher value sectors and create an environment for the emergence of the domestic companies in the respective fields. In the recent geopolitical situation, it is uncertain whether it is possible to attract a significant amount of foreign investors to invest in South Caucasia; therefore, more attention to capacity building and initiating the development of the possible domestic sectors via capacity building seems a more attainable option.

Efficiency-based development contributed to the economic growth in V4 countries, but its potential has been depleting to provide further growth. Therefore, the share of knowledge-intensive activities should increase to preserve achieved economic development and join the rank of the advanced economy. Therefore, V4 countries have to transition to an innovation-driven knowledge economy. Upgrading the technological capacity of the V4 countries and prioritizing innovation are essential parts of the preparedness for the knowledge economy (Marer 2013; Kalotay 2017; Correria, Osorio, Kollar, Gereben, and Weiss 2018).

Already created knowledge somewhere else is utilized with some degree of sophistication and localization, but knowledge creation is extremely limited, and clients of the latter knowledge are the public rather than the private sector in the V4 countries (Radosevic 2006; Vujanovic, Hashi, Hisarciklilar, Radosevic and Stojcic 2022). Innovation in the V4 countries occurs mainly in the form of the transfer of technology, purchasing of the software investment in the machinery assets, but the development of the technological capacity and intangible assets has been less affected (Radosevic 2017; Ferry 2017; Oksanych 2020; Szekely and Kueznel 2021). Advancement of the technological and

innovation capacities is crucial for the development of the knowledge creation capability of the V4 economies. The medium/high-tech manufacturing industry can facilitate the transformation into the knowledge economy in tandem with the rise of the knowledge-intensive service sectors (Fabiano, Andrea Enzo, and Mauro 2020). There is a rising tendency of the share of business services in total R&D spending in V4 countries. However, this tendency is the opposite in Slovakia (Table 10). It can be explained that the business services in Slovakia are not in sectors with innovation potential. The absolute value of R&D spending in both manufacturing and services sectors has experienced rapid growth since 2010 in V4 (again, expect R&D expenditure in business services production in Slovakia). One of the reasons for the increase in R&D spending in this period can be the EU innovation fund. Another reason is the change in attitude to FDI-led growth after the 2008 crisis. It is recognized that targeting FDIs and domestic companies with innovation potential should be more beneficial for reducing the gap with developed economies.

Table 10A. R&D spending in Manufacturing sector (% of total and current USD)

Countries/Years	**1997**	**2000**	**2005**	**2010**	**2015**	**2019**
Czechia						
Share in total	*0.75*	*0.67*	*0.60*	*0.53*	*0.52*	*0.54*
Value	**1.063**	**1.066**	**1.172**	**1.312**	**1.953**	**2.632**
Hungary						
Share in total	*0.77*	*0.74*	*0.75*	*0.59*	*0.41*	*0.46*
Value	**0.387**	**0.537**	**0.793**	**0.945**	**1.051**	**1.563**
Poland						
Share in total	N/A	*0.63*	*0.50*	*0.51*	*0.44*	*0.43*
Value	N/A	**0.441**	**0.618**	**0.896**	**2.112**	**4.301**
Slovakia						
Share in total	*0.23*	*0.39*	*0.45*	*0.69*	*0.66*	*0.64*
Value	**0.15**	**0.144**	**0.124**	**0.254**	**0.347**	**0.529**

Source: OECD STAN database

Table 10B. R&D spending in the Business services sector (% of total and current USD)

Countries/years	1996	2000	2005	2010	2015	2019
Czechia						
Share in total	0.25	0.30	0.36	0.45	0.45	0.44
Value	**0.362**	**0.486**	**0.711**	**1.103**	**1.657**	**2.135**
Hungary						
Share in total	0.11	0.24	0.23	0.38	0.56	0.49
Value	**0.051**	**0.159**	**0.222**	**0.614**	**1.461**	**1.695**
Poland						
Share in total	N/A	0.36	0.49	0.46	0.51	0.55
Value	N/A	**0.255**	**0.612**	**0.779**	**2.438**	**5.553**
Slovakia						
Share in total			0.53	0.29	0.32	0.35
Value			**0.146**	**0.106**	**0.92**	**0.286**

Source: OECD STAN database

Concerning productivity and *innovation capacity*, there is a duality of the highly productive export-oriented (mainly FDI) and domestic-owned domestically oriented low productivity sectors (Galgoczi and Drahakapul 2017). Sass and Szalavetz (2014) find that the R&D activities in the subsidiaries of the MNCs in Hungary mainly concentrate on application-oriented than know-how knowledge creation. These R&D units have weak linkages with the domestic economy. Therefore, it is hard to expect that MNC-led R&D can upgrade domestically oriented companies' innovation and technological capacities. Private R&D is considerably lower than public R&D. Overall, the national innovation policy should be initiated and should target upgrading the innovational capacity of domestic companies. Investment in human capital for both upgrading their skills and extending the pool of the skilled workforce, strengthening the linkages among components of the national innovation systems, university, government, and firms, and investment in the public infrastructure are essential for the transition to the knowledge economy in the V4 countries (Capik and Drahakopil 2011; Bubbico, Gattini, Gerebel, Kolev, Kollar and Slacik 2017; Correria, Osorio, Kollar Gereben A and Weiss 2018). Additionally, the development of non-technological infrastructure, such as corporate governance and the development of

the capital markets are also important for upgrading the innovational capacity of the V4 economies (Marer 2013).

The state of the innovativeness of the South Caucasian economies is not promising to support their technological upgrading. Firstly, the R&D spending is extremely low at 0.2-0.35 % of GDP. Secondly, in contrast to the V4 economies, they did not host productive foreign capital and have not been able to benefit from technological improvement from the foreign capital. Their production system is small and has not fully integrated into the global economy, which influences their innovation systems. Roolaht (2012) proposes that knowledge flow from the inward FDI, international collaboration, investment in human and social capital, and having clear development goals are essential for the innovative system of the small economies, and the South Caucasian countries perform worse in all these criteria. Additionally, "innovation culture" is weak in these countries, and collaboration between the research centers, government, and firms is lacking (Radosevic and Sadowski 2007; Poghosyan 2017). The South Caucasian countries have to promote increasing R&D spending, invest in human capital, integrate into global production, and have a collaboration holy trinity of the innovation system to increase the knowledge intensity of their economies.

The world is stepping forward to a new technological era called Industry Four (I.4.0), and it is going to express itself in the forms of new technology and business forms. The main distinctive features of the I.4.0 are digitalization, robotization, and automatization of production. Rodrik (2019) mentions that new technologies of I.4.0 are a double-edged sword for non-advanced economies. The presence of the capabilities of the new era can enable them to leapfrog and converge faster. But the absence of these capabilities can be a barrier to their development. Gotz et al. (2020) find a duality of the adaptation of the I. 4.0 in the V4 economies, subsidiaries of the MNCs are the main drivers while the domestic SMEs lag. Robotization in the CEE region occurs in the dependent form in foreign companies and mainly in automobile industries. Especially after the Pandemic's shock, V4 economies are in a better position to shift to the digital economy, enabling them to expand the specialization in digital services (Bykova, Grieveson, Grubler, Sass and Szemler 2021). Unpreparedness for Industry 4.0 could pose a risk of losing accumulated economic

achievements in V4 countries. Preservation of the existing progressive sectors and their further expansion and value upgrading requires having capacities that are necessary for the new era. Firstly, more work has to be done to sophisticate the digital infrastructure. Automatization will eliminate the need for humans to do routine tasks and increase the demand for a higher-skilled workforce with sophisticated digital skills and able to do more creative tasks. Therefore, investment in the quality and quantity of human capital should be increased. Lastly, an adaptation of modern technologies should be promoted. Concerns are emerging that technologies of I.4.0 can entice the MNCs to shift their business back to the home economies. However, the preparedness of the V4 economy for the new era, such as the sophisticated digital infrastructure pool of the workforce, endowed with appropriate skills for the I.4.0 can be a decisive factor in preserving the FDIs within their economies to attract the knowledge-intensive FDIs (Szalavetz 2020).

The South Caucasian countries improved both digital literacy and the expansion of digital technology. Despite increased digitalization due to the pandemic, the implication of digital technology in the business sector is not fully achieved. Development of the sophisticated digital infrastructure with cyber security and expansion of digitalization in business is one of the main tasks for the preparedness of these countries for the I.4.0. Additionally, investment in human capital to provide them with the necessary skills of the new era is necessary for benefiting from I.4.0. The digital capacities are necessary for the development of the progressive sectors both via the rise of the domestic companies and foreign capital. Relying on only cheap labor could not bring desirable economic welfare in the new era. They should prepare themselves to acquire capacities to take advantage of global-level changes in technology and business models.

3.6 Summary

Overall, within-sector growth has been the main driver of productivity growth in both regions. Expansion of the higher value-added sector with the dynamic productivity and contraction of low-value agricultural employment distinguishes Poland and Georgia for the higher contribution of the reallocation effects on productivity. The lack of dynamic productivity growth in the higher value-added sectors reduced the positive effect of the labor reallocation in Hungary, Slovakia, and Armenia. The manufacturing and business

service sectors with higher productivity levels and growth rates played an important role in the economic development of the V4 economies. The manufacturing sector has already reached its maximum level of employment. Therefore, its high-rate productivity growth and technological spillover onto other sectors have been more important than its expansion. But the expansion of employment in the high-productivity business services and a spillover effect on other sectors are its main contribution to economic growth. In the case of the South Caucasian countries, the manufacturing sector stayed small and underdeveloped and did not have a significant effect on productivity growth. In contrast to Azerbaijan, Armenia, and Georgia benefited from both expansion of and productivity growth in the modern business service. But its share in employment is still significantly lower. The absence of a powerful manufacturing sector and the lack of the possibility of service exports are the main barriers to the expansion of the business service sector. Integrating these small economies into the GVC via the MNC seems a viable option to mitigate these barriers. Although the contraction of low-value agriculture has been the main driver of the positive reallocation effect on productivity, its share is still considerably higher in South Caucasia, and channeling labor from this sector to the higher productivity activities can spur overall growth further.

The FDI-led economic growth model relied on low-cost labor and nearly exploited its potential, and it does not promise further economic growth in the V4 economies. Transition to a knowledge economy is necessary to sustain achieved economic growth and converge further with developed countries. Building a knowledge economy requires national innovation systems collaborating among government, universities, and firms. At the same time, forthcoming I.4.0 necessitates having a sophisticated digital infrastructure and digitalization of production. Both building of the knowledge economy and readiness for the I.4.0 requires an investment in human capital. The South Caucasian economies could integrate into global production neither via foreign nor domestic capital. They are at a stage of economic development in that imitation of the technology in production can provide economic growth. These countries can achieve economic growth by integrating into the global production system and increasing their innovativeness. Economic development strategy should not rely only on cost competitiveness; the domestic capacity building has to be provided through investment in human capital and increasing R&D

spending. Additionally, having advanced digital infrastructure and a workforce with the necessary skills for the new era can enable these countries to reap the benefits of I.4.0.

4. Institutions and Economic growth

4.1. Introduction

The Communist regime triumphed and rooted out incipient market institutions and replaced them with centralized command mechanisms in V4 and South Caucasia. As the socialist system collapsed, these countries had to build market institutions nearly from scratch. In this chapter, the evolution of institutions and their impact on economic performance in V4 and South Caucasia is investigated. I analyze the institutions and economic growth in two parts. Firstly, the development of the market and property rights institutions and their effect on economic growth is examined. Secondly, the state of particular institutions-labor markets, product market competition, education, and innovation institutions and their impact on economic growth is evaluated.

Institutional change and institutional development are slow processes, and building the current market institutions in these countries has taken considerable time. Svenjar (2002) categorizes the building of market institutions under the headings of Type I and Type II reforms. Type I reforms entail price liberalization and macroeconomic stability. Type II involves the development of laws related to the business and states in the market economy and establishing their enforcement mechanism. Type I reforms are faster to implement, while Type II reforms touch the interest of the different segments of society. Therefore, their preparation and implementation require a long negotiation process to have the respected rules and legislation. As a set of policy recommendations for developing countries, the "Washington consensus" mainly overlaps with type I reforms. In the framework of the Washington consensus in the first half of the 1990s, transition economies were strongly recommended that liberalization, privatization, and stabilization would bring economic growth. However, it misses crucial elements for post-socialist countries. The Washington consensus was initially designed for developing economies that already have market institutions. However, transition economies lacked institutional fundamentals of markets, and the state's role in the forthcoming economic system was not defined (Kolodko 1999). As a result, implementing liberalization, privatization, and stabilization would and did not bring desired growth without establishing essential institutions.

In the first section, the implementation of the stabilization policies in the early stage of transition in V4 and South Caucasia is outlined. Following, the development of essential market institutions is described. After that, the evolution of property rights institutions and measure the effect of property rights on economic growth by employing econometric analysis is presented. In section four, the state of particular institutions and give an econometric evaluation of their effect on economic growth. Section five describes the causal interaction between institutions and structural change is described. The last section concludes.

4.2. Building the market from the ashes of communism

The inability of the socialist economic system to provide further economic development was officially recognized in the Communist bloc in the mid-80s. Additionally, the accumulation of foreign debt necessitated socialist countries to take reform measures. However, reforming the socialist system did not bring the desired result. As the USSR reformulated its foreign policy and reduced its power in Eastern Europe, V4 countries targeted to build a market economic system in the late 80s rather than reforming the socialist system. Basic elements of a market economy, such as price and private property, had been destroyed in the socialist period, and the transition to a market economy required rebuilding them.

In the socialist period, prices were dictated by the central authority rather than the market, which did not give information about the relative scarcity of resources. Therefore, it produced an efficient allocation of scarce resources. Price liberalization is technically easier and faster; for this reason, it was the first step of market building in post-socialist countries. V4 economies left the socialist system earlier than South Caucasia. Consequently, they started the transition and conducted price liberalization before South Caucasia. Poland and Hungary initiated the price liberalization at the beginning of 1990, and former Czechoslovakia in early 1991. Subsidies to the companies were curtailed, but companies were allowed to set prices for their products and were free to decide about their employment decisions. Although it was limited in the sanctity of the socialist system, V4 countries conducted the reforms and internalized some of the market elements, which accumulated knowledge, experience, and human capital for building a market economy. In

contrast, South Caucasia did not have such an advantage. V4 countries were more prepared due to the months-long expert discussions and getting advice from Western knowledge. The South Caucasian countries did not have a well-defined strategy for market reforms; price liberalization in these countries was an inevitable response to the price liberalization in Russia at the beginning of 1992. But the price liberalization was not accompanied by the reduction of subsidies to companies, and they were still on a soft budget constraint. Therefore, price liberalization did not create incentives for companies to move to more efficient production.

It was expected that the transition from socialism would produce temporary output loss, and price liberalization would create a higher inflation rate for a while. In short, the macroeconomic imbalance was inevitable in the initial years of transition; therefore, conducting a comprehensive macroeconomic stabilization was necessary. Building the fiscal institution and implementing an effective fiscal policy was indispensable to macroeconomic stabilization. V4 countries prioritized fiscal policy as a main instrument of macroeconomic stabilization, and ministers of finance were heads of government in Poland and Czechoslovakia (Aslund 2013). Poland and Hungary had inherited fiscal imbalances and large external debt from the last decade of socialism, but Czechoslovakia had a balanced budget and low foreign debt (Begg, Banacek, and Flemming 1991). Nevertheless, subsidy cut was the main driver of fiscal consolidation in V4 countries. Restructuring of the over-employed companies produced massive unemployment, and the democratic governments in V4 countries initiated welfare programs to support those who were worse off as a result of the transition. Meanwhile, the weight of the social spending in budget expenditure increased. At the beginning of the transition, the South Caucasian countries were caught in military conflicts and did not have a clear market reform and macroeconomic stabilization plan. As in other FSU countries, these countries targeted to prevent the output and employment fall. Therefore, they run a large budget deficit by subsidizing inefficient companies. Thus, macroeconomic instability was prolonged in South Caucasia.

In the socialist time, all production facilities belonged to the state; therefore, it was not difficult for the government to collect revenue, but the market economy required an

effective tax system. The tax system was primitive in the soviet period, and there were a few numbers of taxpayers who were large companies. Consequently, it was easier to manage the taxation system at that time. Nonetheless, hundreds of thousands of taxpayers emerged, requiring effective legislation and administrative and technical capacity to manage the tax system effectively. Achievements of the reform governments to establish tax systems in V4 countries were noticeable, while political and economic chaos did not allow for building a functioning tax system in South Caucasia. On one side, large companies had close ties with the political elite, and they avoided paying taxes. Secondly, taxing mushrooming small businesses in the informal sector was hard. On another side, underpaid and corrupted tax administration used their power to get money from the business into their pocket instead of the government treasury (Tanzi 2020). As a result, the governments were deprived of the revenue to do their basic functions in South Caucasia (Table 11). International aid stood for a significant part of the government expenditure in the reality of the inability to tax the economy (Table 12).

Achievement of the macroeconomic stabilization required to build the monetary institutions as in market economies and implementation of effective monetary policies.

Table 11. Budget balance as a percentage of GDP

Country/Yeas	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
Czechia	1.3	-2.2	4.8	-2.1	0.5	-1.2	-1.8	-1.2	-2.1	-1.9
Hungary	N.A	1	-3.7	-7.6	-8.9	-8.6	-6.2	-3.1	-4.7	-4.2
Poland	N.A	2.7	-5.4	-6.3	-2.6	-2.4	-1.9	-2.3	-3.1	-2.4
Slovak Republic	-12	-15	-8.6	-11.9	-7	-1.3	0.4	-1.3	-4.4	-4.9
Armenia	N.A	N.A	N.A	-30.6	-54.3	-10	-11.1	-9.3	-5.8	-4.2
Azerbaijan	N.A	N.A	N.A	-29	-15	-12	-4.9	-2.8	-1.7	-4.2
Georgia	N.A	N.A	N.A	-45.5	-40.2	-25.5	-6.9	-6.7	-5.6	-5.1

Source: Tanzi and Tsibouris (2000)

The banking system of the socialist economy in these countries was a monobank that not only functioned as a central bank but also lent to enterprises (Kutan and Prada 1999). Monobank did not have independence and was the executor of the government's directives. Transition to a market economy required a two-tier banking system, an independent central bank to provide monetary stability, and commercial banks to lend to enterprises based on their creditworthiness and profitability. Hungary established the two-tier banking system in 1987, enabling it to gain a lot of experience, which was useful in the transition's early years. Poland and Czechoslovakia dismantled the monobank into the central bank and commercial banks in 1989 and 1990, respectively. Central banks in V4 countries became independent by legislation, and they did not finance the budget deficit and lend to enterprises. Their main task was to provide macroeconomic stabilization by taming inflation and fluctuation in the exchange rate. After the collapse of the USSR, South Caucasian countries imitated the two-tier banking system. Still, the soviet style banking system was preserved until the mid-1990s when these countries implemented a true macroeconomic stabilization with the assistance of the IMF. The Central banks did not have independence and stayed to finance the huge budget deficit and lend to worse-performing SOEs. Additionally, the staying of Armenia and Georgia in the *ruble zone* exacerbated the monetary instability further in those countries. After the demise of the USSR, the soviet ruble stayed as a common currency in ten of twelve countries for one and a half years. However, national governments in the ruble zone issued it competitively, which produced hyperinflation (Table 13). The aim of achieving the macro-prudence was not a reason behind refuting the ruble and issuing the national currency in Azerbaijan. Rather, ruling the short-lived anti-Russian government in that period can explain the non-participation of Azerbaijan in the ruble zone.

Table 12. Foreign aid as a percentage of government expenditure

Country/Years	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
Armenia	3.2	13.2	38.6	46.4	67	37.6	40
Azerbaijan	0.2	1.8	22.4	11.2	7	14.5	14.3
Georgia	1	7.8	21.6	46	48.8	28.6	25.5

Source: *own calculations based on World Bank Development Indicators; Net Official Aid received (current USD)*

After the disentanglement of the monobank into the central and commercial banks, central banks were able to provide macroeconomic stability in tandem with the fiscal disciplines of the V4 governments. Nevertheless, commercial banks, which were established on the basis of the dissolution of the socialist monobank, inherited a noticeable amount of bad loans. Voucher privatization in the Czech Republic created Investment Funds, and they conducted the trade of shares of the enterprises which were privatized via voucher. Banks governed those funds. As a result, banks keep lending to those enterprises despite a noticeable part of these enterprises that did not perform well. The result was a currency crisis in the Czech Republic in 1997, and the Czech Republic opened the banking system to privatization by foreign banks. Entering foreign banks into the Czech Republic's financial sector improved the country's financial system (Berglof and Bolton 2004). The close link between banks and enterprises also occurred in Slovakia in the Meciar period, which threatened the stability of Slovakia's financial and banking system. After a more liberal government replaced the Meciar government, restructuring measures and privatization to foreign companies solved the problem. Nonetheless, the Hungarian banking system was more prudent, but it inherited the bad loans, and again privatization to the foreign banks improved the health of the financial system of Hungary (Classens and Djankov 1998). The injection of capital by the government to improve the banking system before privatization was characteristic of V4 countries. In South Caucasia, the SOEs were financed via direct credit from the Central Banks at a few percent interest rate in the state of hyperinflation until the mid-1990s, and the practice of lending to inefficient enterprises continued via the state banks until the late 90s. With the assistance of international financial institutions, South Caucasian countries could restructure and open their banking sector to privatization (Golodniuk 2005).

V4 countries were already aware of the necessity of reforms in the macroeconomic management in the last decade of socialism, and to more extent, Poland and Hungary had reform experiences and links with the IMF. It created a lot of knowledge and experience for them, which was useful in sustaining macroeconomic stability in the early years of the

transition. At the beginning of the transition, V4 countries had a well-prepared master plan for macroeconomic stabilization. In addition to knowledge, experience, and technocrats, the political environment also enabled the realization of the necessary measures to sustain macroeconomic stability. The Parliamentary democracy enacted legislation necessary for macroeconomic stability and established a check and balance system of chasing their implementation. Even though the Meciar regime in Slovakia in 1994-98 tended to deviate from democracy, the fiscal and monetary institutions were already established until that time during the post-socialist Czechoslovakia period and maintained macroeconomic stability. There was no political polarization in V4 countries; therefore, political parties could agree on the major reform measures and provide consistency in the following period, which provided the successful implementation of the reforms to sustain the macroeconomic stability (Frye 2010). As a result, V4 countries could sustain the stability of the macroeconomic environment, keep the budget deficit under control, and not experience hyperinflation. When the USSR was dismantled, and the South Caucasian countries found themselves on their own to overcome the accumulated problems of the inherited system, they did not have a ready plan to manage the situation. Additionally, at the beginning of the transition, they had to be involved in large-scale military conflict for years (Georgia-Abkhazia 1992-1993; Armenia-Azerbaijan 1992-1994).

Table 13. Inflation (Consumer Price annual %)

Country/Years	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
Czech	1.5	12	13	11.2	20.8	10	9	8.8	8.6	10.7
Hungary	17.1	28.4	34.8	23.7	22	18.9	28.3	23.5	18.3	14.2
Poland	244	567	76	46	37	33	28	19.8	14.9	11.6
Slovak Republic	N.A	N.A	N.A	9.9	23.3	13.4	9.8	5.8	6.1	6.7
Armenia	N.A	N.A	N.A	824	3731	5273	177	18.7	14	8.7
Azerbaijan	N.A	N.A	N.A	912	1129	1664	411	19.8	3.7	-0.8
Georgia	N.A	N.A	N.A	888	3125	15698	162	39.4	7.2	3.6

Source: *World Bank Development Indicators*

Meanwhile, the main national goal was to win the war; therefore, macroeconomic stabilization was postponed. Functioning fiscal and monetary institutions were not established in the first years of the transition. The result was years of hyperinflation in these countries. Meantime, war-involved governments could not provide basic stability and security. Therefore, societies in these countries urged the ex-communists to take political power and provide political, social, and economic stability (Aslund 2013). Governments led by the ex-communists achieved political stabilities and received financial and technical assistance from the IMF and World Bank to achieve macroeconomic stability. By 1997, South Caucasian countries brought inflation under control.

Achievement of the macroeconomic stabilization was less-time consuming if concrete steps were taken. V4 countries could take the necessary measures in time to conduct Type I reforms and establish macroeconomic stability quickly. While the South Caucasian countries hesitated, therefore, the macroeconomic instability was prolonged, and it affected the further development of the market institutions. Achievement of fiscal and monetary stability in V4 countries mitigated the fall in national output and fostered restructuring.

3.3. Market Building

Establishment of the constituents of the market economy, such as private business, giving the rights of participation in foreign trade to the private business from the state monopoly, shifting from the plan target to the profit target in enterprises, and reconstructing the market-based financial system from the socialist banking system has been the main requirements of the transition to the capitalist way of production. In this section, an overview of the development of the market institutions in V4 and South Caucasia is given.

Private Business. In the socialist time, all production facilities belonged to the state, and private business was forbidden. But private business is an essential requirement for building a working market economy. The development of private business evolved at a different character and speed in these regions. Poland and Hungary had initiated market reforms and legalized the private business to a limited extent, and the private sector was producing 15 and 20 percent of the GDP in these countries, respectively, in the 1980s (Bornstein 1999). Privatization of the SOEs, especially the large companies would take a

long time, that is why *de novo* private companies had been the drivers of private production in the V4 countries in the initial years of transition. Czecho-

Table 14. The private sector as a percentage of GDP

Country/Year	1994	1995	1996	1997	1998	1999	2001	2005	2010
Czech	65	70	75	75	75	80	80	80	80
Hungary	55	60	70	75	80	80	80	80	80
Poland	55	60	60	65	65	65	75	75	75
Slovakia	55	60	70	75	75	75	80	80	80
Armenia	40	45	50	55	60	60	60	75	75
Azerbaijan	20	25	25	40	45	45	60	60	75
Georgia	20	30	50	55	60	60	60	65	75

Source: *EBRD Transition Reports*

slovakia prepared the legal basis for private business, and Poland and Hungary developed their existing legislation. Meanwhile, the entrepreneurial spirit did not find themselves in a legislative void and realized their potential in the private business. As a result, private sector production in the V4 countries rose to a considerable level in the initial years of transition before the privatization of SOEs took off (Table 14). In the perestroika period, a limited form of freedom to decide on production was given to the enterprises in the USSR, but there was no legislative foundation for private business. In the early years of post-socialism, governments in South Caucasia were not able to provide basic political, social, and macroeconomic stability, and institutional chaos dominated (Popov 2007). In such a condition, it was not possible to build the legislative ground of the private business (Papava 2005).

Rather than governmental bodies, criminal groups regulated the business activities with their own rules. After the establishment of stability, commercial laws were enacted. Still, the laws from the soviet period were in power for a while, creating confusion and room for corrupt behavior, which impeded the development of private business. As a result, the contribution of private production to GDP was minuscule, mainly in the informal

sector. The share of private business in the national production surpassed 50 percent in the late 90s, and it became prevalent in the mid-2000s in South Caucasia while it reached that level in V4 countries a decade before. The rise of private business was slowest in Azerbaijan. The rapid emergence of *de novo* private firms can explain the less dramatic output fall in V4 countries. Transition shock resulted in the shutting down of some SOEs and a decline in their production which expressed itself negatively in the national output. Nevertheless, production in the de novo private companies compensated for the fall in national output due to the mentioned factors. It employed some workers who were fired from SOEs in the V4 countries. Production in SOEs in the South Caucasian countries was heavily dependent on trade, production, and the financial link with the USSR economy. After the collapse of the USSR, these links were cut off, and it caused a larger fall in production in SOEs in these countries. However, institutional chaos and lack of commercial legislation did not allow de novo private companies to emerge, which could alleviate the sharp decline in GDP in this period.

Another necessary block of building an economy based on private business is the privatization of the SOEs. V4 countries established the administration of the privatization of state assets from the beginning of the transition. Privatizing small companies, especially in the retail trade, consumer services, agriculture, etc., was easy, and V4 countries privatized the small companies quickly (Table 15A). But there have been many concerns that should be taken into account in the privatization of large companies. Large companies required restructuring, and the regulatory issues of companies in banking, public utility, and telecommunications should be considered when they were privatized. Additionally, the privatization of large companies necessitated sufficient investors with financial resources to purchase and restructure the privatized companies. In these regards, the privatization of large firms took years. In contrast to South Caucasia, at the beginning of the transition, V4 countries corporatized and commercialized large firms prior to their privatization. Corporatization of the companies converted SOEs into Joint Stock Companies (JSC) with tradable shares as in the capitalist economies. Commercialization reformulated the production in SOEs to conduct their activity based on profit-seeking (Bornstein 1999). Corporatization and commercialization increased the efficiencies of the SOEs and made them more attractive to investors. Privatization of the larger companies occurred slowly in

Poland while it proceeded faster in other V4 countries. From the beginning, Hungary chose to privatize to foreign investors while other countries wanted to have a domestic bourgeoisie. However, they also realized that domestic investors did not have enough skills and financial resources to restructure privatized companies and had to agree to privatize to the foreign investors. V4 countries deepened the market reforms and developed property rights institutions to attract foreign investors. MNCs restructured outdated companies, especially in the heavy industries, and integrated them into the GVCs.

Armenia privatized small companies, such as retail trade and consumer services, even during the macroeconomic turmoil. The Nationalist Georgian Government also initiated the privatization of land, although they did not have laws on land and its trade. The South Caucasian countries continued the privatization of small firms without building supportive commercial legislation in the mid-90s. Privatization of large companies was crucial for the subsequent development of the market institutions and economic growth. The ex-communists successfully managed the chaos of the early transition to become a political and economic power, enabling them to design further market reforms in their favor. Until the privatization of large companies was implemented, governance of the economy was based on relations between ministries and enterprises as in the Soviet era. The ex-communists ruled ministries and enterprises, and they enriched themselves via subsidies from the state budget and loans from the Central bank. At the same time, three branches of the government were under the control of the ex-communists. In this regard, they privatized the large companies to themselves and their patronages. The speed of the privatization of large companies is slowest in Azerbaijan, a notable number of the large companies in the energy, transportation, public utilities, and telecommunications have not been privatized until now, and these companies are still on the soft-budget constraint (Hashimova and Kadhyrov 2017).

Privatization aimed to escape the inevitable inefficiency of excessive centralized economic decision-making. However, the change of ownership cannot automatically increase the efficiency of privatized companies. Achievement of efficiency requires the overall environment to incentivize companies to organize their activity in an economically efficient way to survive. V4 countries could build an economic system that forces companies to

Table 15A. Small-scale Privatization

Country/Years	1994	1995	1996	1997	1999	2000	2001	2002	2003
Czech	4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Hungary	4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Poland	4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Slovakia	4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Armenia	3	3	3	3	3.3	3.3	3.7	3.7	3.7
Azerbaijan	1	1	2	3	3	3.3	3.3	3.7	3.7
Georgia	2	3	4	4	4	4	4	4	4

Source: *EBRD Transition Indicators*

Table 15B. Large-scale Privatization

Country/Year	1994	1995	1997	1999	2000	2002	2003	2005	2010	2014
Czech	4	4	4	4	4	4	4	4	4	4
Hungary	3	4	4	4	4	4	4	4	4	4
Poland	3	3	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7
Slovakia	3	3	4	4	4	4	4	4	4	4
Armenia	1	2	3	3	3	3	3	3.7	3.7	3.7
Azerbaijan	1	1	2	1.7	1.7	2	2	2	2	2
Georgia	1	2	3.3	3.3	3.3	3.3	3.3	3.7	4	4

Source: *EBRD Transition Indicators*

increase their efficiencies via restructuring. However, a pluralistic political environment and a check and balance system did not allow the special business groups to rely on public resources to survive. Additionally, the EU integration process accelerated to build a business environment that stimulates efficiency improvement. Table 6 shows that V4 countries already had a noticeable achievement in the governance and enterprise restructuring in the initial years of the transition. They improved further on the eve of joining the EU. The non-democratic political development in South Caucasia enabled the political elite to privatize the large companies to themselves. They also built further market reforms that served their economic interests. Table 16 shows that enterprise restructuring is still incomplete in these countries. *The political-economic elite implicitly or explicitly can get subsidies from public resources to cover costs and establish monopolies in certain sectors. In such an environment, they are not motivated to conduct a painful restructuring.*

A considerable volume of large companies are not privatized in Azerbaijan, and their management is based on political closeness rather than meritocracy. Accumulated inefficiencies in these companies have not been possible to ignore, and they drained a lot of the budget resources in the form of subsidies. The State Investment Holding was established in 2020 to improve the performance of the SOEs in Azerbaijan. However, socialist-style centralization would not produce the desired result.

Table 16. Enterprise Restructuring and Governance

Country/years	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2005**	**2010**	**2014**
Czech	3	3	3	3	3	3	3.3	3.3	3.7	3.7
Hungary	3	3	3	3	3.3	3.3	3.3	3.7	3.7	3.7
Poland	3	3	3	3	3	3	3	3.7	3.7	3.7
Slovakia	3	3	3	2.7	2.7	3	3	3.7	3.7	3.7
Armenia	1	2	2	2	2	2	2	2.3	2.3	2.3
Azerbaijan	1	2	2	2	2	2	2	2.3	2	2
Georgia	1	2	2	2	2	2	2	2.3	2.3	2.3

Source: *EBRD Transition Reports*

Foreign trade in the socialist period had its specificities. Trade mainly occurred among the socialist countries, which deprived them of the possible positive effects of the technologically more developed Western countries (V4 countries could build trade relations with the Western countries in a limited form since the 70s, which contributed positively to their organizational and technological capacity (Pula 2018)). At the same time, companies could not autonomously participate in the import and export activities, and it was conducted by the government bodies responsible for foreign trade. Transition to the market economy required integration into the world economy and liberalization of foreign trade has been one of the necessary channels of this integration. Trade liberalization involves abolishing restrictions on enterprises to import and export and their access to foreign currency. V4 countries liberalized foreign trade from the beginning of the transition. The South Caucasian countries initiated trade liberalization in the mid-90s after taming the turmoil of the early transition, and it proceeded slower in Azerbaijan (Table 17). It is

expected that competition from imports and the desire to export can stimulate enterprises in the tradable sector to develop their capacity to survive and thrive. But the success of trade reforms to spur economic growth depends on the effectiveness of the market reforms in the domestic economy. If the domestic firms are still on soft-budget constraints by subsidies and cheap credits, and have a monopoly in the domestic economy, then they are not exposed to competition with foreign companies (Barlow 2006). The liberalization of foreign trade has been supported by the liberalization of the domestic economy in V4 countries, but trade liberalization in South Caucasia is not supported by domestic liberalization.

Table 17. Liberalization of foreign trade

Country/Year	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Czech	4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Hungary	4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Poland	4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Slovakia	4	4.3	4.3	4	4.3	4.3	4.3	4.3	4.3	4.3
Armenia	2	3	4	4	4	4	4	4	4	4.3
Azerbaijan	1	2	2	2.3	3	3.3	3.3	3.3	3.7	3.7
Georgia	1	2	3	4	4	4	4.3	4.3	4.3	4.3

Source: *EBRD Transition Reports*

Banking reforms. In the socialist period, banks did lend to enterprises based on orders from the government. However, they did not check the borrowers' creditworthiness and the business's profitability. Transition to the private property-based market economy required banks to screen the loan demands and decide for themselves and take responsibility for their loan decisions. In other words, banks can contribute to economic development by channeling financial resources to profitable investments of creditworthy entrepreneurs since the socialist economic system, including its banking system, could not differentiate the efficient from inefficient firms. Moreover, the financial sector is sensitive to asymmetric information. Therefore, a well-designed and enforceable regulatory environment is necessary to restructure the banking systems. In parallel with achieving

macroeconomic stability, the V4 economies initiated building the regulatory framework of the effective banking system. However, banks inherited bad loans and did not have enough capability to screen the loans for complex and long-term investments. Therefore, governments in V4 countries cleaned the banks' bad loans and privatized them to foreign banks in the late 90s. At the same time, they developed the regulatory basis of the banking system since EU membership required it.

The macroeconomic instability and hyperinflation in the early transition period in South Caucasia affected the banking sector negatively. The hyperinflation caused money to leave the financial institutions, depriving banks of deposits. Therefore, the Central banks and governments had to provide loans to the commercial banks. Additionally, the South Caucasian countries liberalized the financial system at the beginning of the transition, which resulted in mushrooming of small banks. The liberalization of the domestic financial system preceded the macroeconomic stability and the development of the necessary regulatory environment for banking activity. It resulted in the development of the Ponzi schemes and their collapses, which shook the public trust in banks. At the same time, hyperinflation melted the working capital of the enterprises, and they became extremely dependent on external capital. However, the lack of bank restructuring and the development of the regulatory environment in the banking industry created an obstacle to the significant part of the enterprises` access to bank finance. The result was the rise of the cash-based economy, barter, and mutual write-off among the enterprises. Meanwhile, the South Caucasian countries started reforms in the financial sector as a part of the market reforms, which the IMF and the World Bank assisted. After the Russian crisis in 1998, they accelerated the reforms in the financial sector further. At the same time, access of the banks in South Caucasia to cheap financial resources in the international financial markets increased. Access to these financial resources resulted in ignoring the reliance of bank loans on the domestic deposit. However, foreign capital, via the domestic subsidiaries of the foreign banks, also played an important role in the domestic loans in V4 countries. However, the Global Financial Crisis (GFC) resulted in a halt in access to cheap capital in both regions. In the example of Hungary, Boldizshar, Nagy-Kekesy, and Rariga (2021) show that V4 countries increased the domestic deposit after the GFC, which is supportive of the stability of the domestic financial system. Even though it is behind V4, South

Caucasian banks could also increase their deposit base. But a loan for long-term investment still is a small part of the bank credit in South Caucasia, which impedes the realization of productive long-term investment.

Unpreparedness for the expected transition shock and involvement in war made the South Caucasian countries find themselves in the depth of the macroeconomic chaos. Overall political and economic chaos enabled the ex-communists to take the rule over the political and economic power. The whole career of ex-communists had been to enrich themselves by stealing public resources, and it was not expected and happened that they would change their habit when they centralized the political power. As a result, they conducted the market-building part of Type II reforms after the chaos subsided and designed and implemented them in an incomplete way to benefit themselves. But V4 countries were prepared for transition shock and designed and conducted the reforms in a pluralistic political environment. In this regard, they implemented the market reforms in a completer form which minimized the benefiting of one interest group at the cost of another.

3.4 Property Rights

Replacement of the socialist institutions with the market institutions was necessary but not sufficient for the development of the V4 and Caucasian countries. The long-term development of these economies requires other components of Type II reforms to provide a favorable business and investment environment. They can be provided by the protection of property rights under the *rule of law*. The state of the property rights institutions and the rule of law goes hand in hand with political development. The political environment determines whether that state provides the protection of property rights to all economic actors or just to close alliance of the political elite, whether the state distributes the main production facilities exclusively to their limited circle of supporters and channels the public resources to them. In this section, a description of the development of the property rights institutions and the rule of law and an explanatory mechanism of their effect on the economic performance in V4 and South Caucasia and introduce an econometric analysis of the impact of property rights on economic growth in these countries is given.

V4 countries had direct contact with the Western world, preserved their sovereignty during the interwar period, and stayed for a shorter period under the socialist system, which

created a different state of the political environment than South Caucasia. The state of inclusive political institutions, even in most democratic countries, was far from today`s level in the first half of the twentieth century. V4 countries also could not achieve matured democracy. Despite the authoritarianism trends, there is a limited playing field for opposition to express themselves in interwar V4 countries. In contrast, the Stalinist regime built totalitarianism by terrorist methods and extricated the roots of political liberalism in the USSR, including South Caucasia. Forty-five years of socialism could not destroy political liberalism totally. On the eve of the demise of socialism, V4 societies have an active population with a memory of the alternative political institutions, but not in South Caucasia. Additionally, societies in V4 countries were decisive in turning to Europe and embracing European values. At the same time, the European Union (EU) was willing to accept the V4 countries and assisted in the political transition (Mrak and Rojec 2013). In the late 80s, Gorbachev initiated the reform policy to tackle the long-lasting stagnation in the USSR, and *glasnost* (transparency) as a political reform enabled them to express dissatisfaction with the working of government bodies openly. The agenda of the political discussion in the first two years of glasnost (1987-1988) was economic and social problems; however, its topic changed quickly. It was assumed that the soviet nations were in brotherhood with each other and national conflicts were over in the USSR. Political freedom disproved this assumption. The weakening of the USSR created a power vacuum, and republics tried to exploit that situation to grab land from each other. The rise of national sentiment and ethnic contradiction brought ultra-nationalist dissidents into the leadership, and lasting, large-scale wars became inevitable. These wars in South Caucasia in the early transition period determined the development of the state, political institutions, and, consequently, the rule of law.

The transformation from the socialist system into a market economy required well-planned massive political and economic reforms, and the existence of a capable state was an inevitable part of the realization of the reforms. V4 countries could preserve the state and implemented the necessary reforms. Involvement in the war disabled states to exert their rules over their subjects in South Caucasia. States failed, especially in Georgia and Azerbaijan, paramilitary and criminal groups (*thief-in-law)* filled the emptiness. There was also no legislative basis for private business, and government officers used their power to

extract illegal money from businesses in Armenia. But the state in Armenia could preserve power over its subject and was not failed as in Georgia and Azerbaijan (Stefes 2008). State failure and lawlessness in the early transition aggravated the output decline in South Caucasia. Again, a relatively functioning state in Armenia made it the best among worsts for output loss. The early transition period can be categorized as Hobbesian; economic subjects could have a right over their property if they could protect it by themselves because states were not capable of doing it (Volkov 2002). Therefore, investment in productive activities was not a wise option.

Table 18. Rule of Law

	1996	**2002**	**2005**	**2010**	**2012**	**2014**	**2015**	**2017**	**2018**	**2019**
Czech	0.92	0.86	0.87	0.94	1.03	1.14	1.14	1.12	1.06	1.05
Hungary	0.91	0.98	0.86	0.78	0.62	0.51	0.41	0.57	0.58	0.53
Poland	0.77	0.71	0.48	0.69	0.78	0.82	0.78	0.44	0.42	0.43
Slovakia	0.16	0.32	0.54	0.57	0.49	0.49	0.49	0.54	0.5	0.53
Armenia	-0.47	-0.42	-0.4	-0.49	-0.42	-0.37	-0.39	-0.16	-0.15	-0.13
Azerbaijan	-1.2	-0.91	-0.79	-0.89	-0.83	-0.67	-0.67	-0.56	-0.59	-0.58
Georgia	-1.26	-1.06	-0.71	-0.21	-0.01	0.19	0.27	0.32	0.33	0.31

Source: *World Bank Governance Indicators*

V4 countries unanimously decided to move to democratic Europe, and political polarization is low. Th political groups' vision about their countries' futures and necessary reforms were similar in V4 countries. In this regard, they could build democratic institutions and come to an agreement on the necessary market reforms. The initial years in independent Slovakia were accompanied by the authoritarian trends under the Meciar regime, which affected the rule of law (Table 8). However, the fear of exclusion from Europe motivated Slovakia to strengthen democracy as a part of the EU integration process; democracy and the rule of law improved in Slovakia in the post-Meciar period. Opposition agreement which could strengthen the majoritarian character of the politics in Czechia, was a slight deviation from democracy (Bustikova and Guatsi 2017). However, the political opposition and Constitutional court did not allow the institutionalization of majoritarian rule. A short

period of democratic deviation expressed itself as a decline in the rule of law indicator (Table 18). However, it improved again on the eve of being an EU member.

There was statelessness, chaos, and hyperinflation in Georgia and Azerbaijan, and territorial loss aggravated the situation. These countries were at the edge of large-scale civil wars. In order to restore the rule in their countries, the USSR-level high-ranked ex-communist leaders were invited to rule the country. Shevardnadze in Georgia and Aliyev in Azerbaijan preempted civil war, ended armed opposition, and brought order; after that, they implemented macroeconomic stabilization and market reforms with the assistance of international organizations. Meanwhile, Shevardnadze established parliamentary authoritarianism, and he could not centralize political power. His ten-year presidency was characterized by excessive corruption in Georgia. Despite this, he could end the chaos, but he could not build a strong state. He distributed the main assets to his political alliances via privatization and had to give a monopoly in some illegal activities, especially smuggling, to criminal bosses. The main economic actors could avoid the taxes; therefore, it was not possible to give decent salaries to government officials. As a result, Shevardnadze closed eyes to the looting of the impoverished Georgian society by corruption (Stefes 2006). In contrast to Azerbaijan and Georgia, the political transition occurred peacefully in Armenia. From the beginning of Gorbachev`s *glasnost*, Armenians started a campaign to separate Nagorno Karabagh Autonomous Oblast (NKAO) from Azerbaijan and annex it to Armenia. This request was declined by the highest-level political bodies of the USSR. When they saw that the USSR would not give NKAO to Armenia, then the ruling communists and oppositions avoided the polarization and coordinated their efforts to take the NKAO (Stefes 2006). The leader of the Nagorno Karabagh Movement, Ter-Petrosian, was elected as the president of Armenia. After the cease-fire with Azerbaijan paused active war, Ter-Petrosian started the political centralization with illiberal measures. However, he was forced to resign by military leaders Robert Kocharyan and Serj Sarkisyan. New leaders established authoritarianism in Armenia.

There emerged a divergence in the state of the property rights institutions between V4 and South Caucasian countries in the first decade of the transition. The rule of law and equal treatment improved considerably in the V4 countries. The s*tick and carrot policy* by

the EU played an important role in such improvement in tandem with the political will in the V4 countries. The Political elites in South Caucasia did provide macroeconomic stability and basic order and they did not strengthen property rights and inclusive political institutions. Instead, they used political power to bless their own circle via rent-seeking and corruption mechanisms. The political condition in Georgia enabled them to challenge the corrupt regime of Shevardnadze in 2003. Saakashvili, the leader of the Rose Revolution, was elected as president. There was rampant corruption in every aspect of life in Georgia, and the weak state under Shevardnadze was not eager and able to alleviate that situation. Saakashvili had a great achievement in mitigating corruption and strengthening the state. The rule of law improved considerably, and Georgia became the best performer among South Caucasian countries on the rule of law. Despite all these developments, the rule of law regime triumphed in Georgia, neither in Saakashvili nor in the post-Saakashvili period. Instead, the law of the ruler persists. Saakashvili initiated the centralization of power, increased the authority of the president, appointed judges to the court, and increased the power of the prosecutor over the courts (Papava and Tapladzhe 2015; Beglund 2016). Judiciaries had to comply with orders from the Saakashvili government and show loyalty. Therefore, it cannot be said that the independence of the court system was achieved in Georgia (Mendelsky 2016). Additionally, he started a campaign against the opposition, and it created an incentive for the political actors to side with his party in order to avoid penalties. He punished the member of the previous government for wrongdoing but kept a blind eye on the similar action of the party members and close alliances. As a centralizing political power, the Saakashvili government distributed the economic resources in favor of their own circle and provided them with rent opportunities. Privatization during the Shevardnadze period was considered corrupt and unfair, and their property was de-privatized and allocated to the new elite. The remaining economic elites had to align with the ruling party for the protection of their property rights. Civil society Organizations (CSO) were decisive in the Velvet revolution in Georgia in 2003. However, the main figures of CSOs have been absorbed into the Saakashvili government. This resulted in the underdevelopment of the check and balance system in Georgia. Expectation of the Georgian society from the Saakashvili government was not satisfied fully, and the release of the scandal video of the torture applied by the police a week before the election reduced

the popularity of the Saakashvili government. The Georgian Dream (GD), ruled by a billionaire oligarch Ivanishvili, won the parliamentary election in 2012, and the Saakashvili period ended when his presidency was over in 2013. The main scheme of Georgian politics, marginalization, and persecution of the opposition party by the instrumentalization of the judiciary did not change. The main political and economic figures of the Saakashvili period were prosecuted and arrested. Economic assets and economic resources are reallocated on the basis of the political affinity principle, and still, there is no independent judiciary system to check the government. However, there has been an improvement in the rule of law indicators in Georgia since 2014, and the GD government attempted to reform the judiciary system, but still, it cannot be claimed that courts are truly independent of political pressure.

The Nagorno-Karabagh issue played an important role in Armenian politics and created a clan-based political environment. Commanders of the Karabagh war started to affect politics and increase their power after the ceasefire was achieved in 1994. President Ter-Petrosian was ousted by the Karabagh clan for his soft position in the peace talks with Azerbaijan (Giragosian 2006). The Kocharyan-Sargisian regime used their political power to inhibit the development of democracy, the rule of law, and an independent judiciary system (ibid). After the mass protest in 2008 and its bloody suppression of it, the Armenian government hardened further. As a typical post-soviet authoritarianism, the Kocharyan-Sargisian regime used its political power to distribute economic resources based on loyalty (Shahnazarian 2019). The business elite had a seat in the parliament and mainly from the ruling Republican Party (Stefes 2008). The ruling Republican Party did not have an ideological base that could only provide career opportunities to the unscrupulous young; it did not have a social base. A bloody suppression of the mass protests against electoral fraud disparaged the ruling elite. After a decline in GDP of 13.5 percent in response to the 2008 crisis, the Armenian economy stagnated until 2017. Lastly, the skirmishes over the Nagorno Karabagh between Armenia and Azerbaijan escalated from episodic shooting into intensive artillery and mortar shelling which culminated in a large-scale four days war in April 2016. The ceasefire was achieved, but Armenia lost a small territory, and the weakness of its army was revealed. The ruling elite, victor commanders of the first Karabagh war, could build an image that they were a capable guarantor of the security of

Nagorno Karabagh and Armenia. However, the April war debunked it and deprived the ruling elite of the last card of their legitimacy in public opinion. In this regard, the ruling clan was ousted at the first opportunity in the Velvet Revolution in 2018. A short time after the regime change, global pandemics, restart of the large-scale war with Azerbaijan, and current global uncertainty occurred. Therefore, mentioned bad fortunes absorbed the resources of Armenia and did not allow the new government to conduct large-scale economic reforms. Consequently, it is too early to opine about the effect of the regime change on the property right institutions and economic development in Armenia. However, the CSO that has been important in the 2018 Velvet Revolution still keeps a critical distance from the government in Armenia and tries to keep the government accountable. It creates hope for strengthening the rule of law in Armenia.

After the chaos of early years of transition, semi-authoritarianism was established in Azerbaijan. The same ruling elite could preserve the political power in their hand since then. Early 2000s was a time of construction of the pipeline to deliver Azerbaijan oil to Europe. Incoming oil revenue enabled dominant political power to conduct ambitious social programs, and fiscal expansion boosted the economy. After the long-lasting poverty of transition shock, the economic boom increased the social support of the new president. Additionally, reliable partnership with the Western countries over oil and gas eased the external pressure on sidelining democratic institutions, and incoming oil revenue enabled the existing political elite to pacify society by suppressing political opposition. As a result, authoritative tendencies became firmer. Political power is used to allocate economic power to the political elite. The business sector is shared among groups loyal to the government, and outsiders do not have access to the major business. Political ties are crucial for becoming a successful businessman in Azerbaijan. The State subsidies to the SOEs and government procurement are the channels of the allocation of economic resources to the political clients in the patronage system of Azerbaijan. The gloomy state of the rule of law index shows the insecurity of the protection of property rights (Table 18).

The firm base of the rule of law was built until the EU membership in the democratic political environment in the V4 countries. The political development in the post-accession period created a threat to the rule of law in Hungary and partially in Poland.

PiS government in Poland attempted to reduce the limit and control over them in 2005-2007 and 2015, but both attempts were unsuccessful (Bustikova and Guasti 2017). However, there is an ongoing illegal "war" between parliament, the president, and the government, which undermines the rule of law (Wyrzykowski 2019). The rule of law in Poland has weakened considerably since 2015 (Table 18). The Fidesz government in Hungary undertook to monopolize the politics and sideline the check balance institutions and achieved it up to some extent. Meanwhile, the state of the rule of law deteriorated in Hungary. By sidelining the check and balances, the Fidesz government is able to allocate economic resources to its oligarchic cronies (Bustikova and Guasti 2017). The Fidesz in Hungary and PiS in Poland created a patronage system and a new way of rent-seeking via the distribution of public procurement and EU funds to close the political circle without true public tender. Suppressing of the domestic competitive environment changes the incentive of the significant part of economic actors from finding innovative business solutions to finding ways of becoming close to the ruling government (Szanyi (2022).

A line of literature emphasizes the importance of informal institutions for economic growth (Tabbelini 2010; Williamson 2009). Informal institutions can play an important role in economic growth by supporting the effective functioning of growth conducing formal institutions. Tabellini (2007) highlights that two characteristics of informal institutions are important for economic development: trust, respect, tolerance for other people, and confidence in individualism. On one side, trust enables more economic interactions and promotes anonymous economic interactions by reducing the cost of enforcement. Additionally, it facilitates the coordination of people to improve the functioning of government institutions. In other words, trust in anonymous enables both to interact outside of the local community and feel responsible outside of the local community. It results in promoting better functioning of modern states, which is the main guarantor of formal institutions. Higher confidence in individualism indicates that members of society believe that individual efforts economically pay off. In this regard, they are more likely to work, invest in the future and innovate. If confidence in the importance of individual efforts for economic well-being is low and economic success is related to luck and connection, individuals` attitudes toward economic activity will be lower. Confidence in individualism can be a barometer of entrepreneurial spirit. The tables display two main features of

informal institutions in these regions. Table 19 A/B characterizes trustworthiness in society. The level of tolerance and respect for others is high and at a similar level in both societies, but trustworthiness declines in the case of South Caucasia. In the case of confidence in individualism, in both societies, people consider that individuals have a big control and choice over their way of life. However, people give nearly the same importance to luck and

Table 19A. World Value Survey (Trust)

	1990/94	**95/98**	**2005/09**	**2010/14**	**2017/2022**
Trust					
Czechia	30.2	27.2			
Hungary		22.5	28.7		
Poland	31.3	16.9	18.1	22.2	
Slovakia	23	25.8			
Armenia		23.5		10.9	8.5
Azerbaijan		19.4		14.8	
Georgia		17.7	17.6	8.8	

Source: World Value Survey Database

Table 19B. World Value Survey (Tolerance)

	1990/94	**95/98**	**2005/09**	**2010/14**	**2017/2022**
Tolerance					
Czechia	64.4	60			
Hungary		63.5	76.1		
Poland		81.5	84.9	82.6	
Slovakia	62.7	57.1			
Armenia		48.4		56.3	57.7
Azerbaijan		59.1		71.7	
Georgia		54.1	72.1	67.4	

Source: World Value Survey Database

Table 19C. World Value Survey (Control over own life)

	1990/94	95/98	2005/09	2010/14	2017/2022
Control					
Czechia		6.97			
Hungary		6.36	5.83		
Poland			6.56	6.67	
Slovakia		6.37			
Armenia		5.66		6.52	6
Azerbaijan		5.61		7.23	
Georgia		6.16	6.4	6.25	

Source: World Value Survey Database

Table 19D. World Value Survey (Role of luck and connection on success)

	1990/94	95/98	2005/09	2010/14	2017/2022
Luck/Connection					
Czechia	4.08	5.12			
Hungary		5.01	5.05		
Poland	5.78	5.81	5.93	5.66	
Slovakia	4.43	5.02			
Armenia		5.11		5.85	5.82
Azerbaijan		4.35		6.55	
Georgia		4.18	4.67	5.17	

Source: World Value Survey Database

connection as hard work for a better life. In sum, it can be said that people in V4 and South Caucasia internalized the mentality of capitalist life and are eager to use their energies to make their life better. However, especially in South Caucasia, their culture seems to need to internalize more trustworthiness elements for handling national-level coordination for

building better government. Nonetheless, these results do not claim the determinism of culture on economic development. It can also be claimed that the level of economic development also can have an effect on culture (Lerner 1958; Rostow 1959). Additionally, some of the East Asian countries achieved economic success without conducting cultural revolutions (Cho 1995).

3.4. Econometric test

There are a lot of seminal works to evaluate the effect of institutions on economic growth, and all agree on the importance of institutions for economic growth. However, the measurement of institutions is not unanimously agreed upon and is open to critics. Glaeser, Porta, Lopez-de-Silanez, and Shleifer (2004) suggest "objective" measures of institutions. They use measures of formal rules like differences in electoral rules and judicial independence. Formal institutions alone may not state institutional reality; informal institutions are important for the enforcement of formal institutions (Woodruff 2006). Therefore, an additional measurement of institutions is necessary. Various survey indicators have been developed as measurements of institutions, such as World Bank Governance Indicators, Heritage Freedom Index, International Country Risk, and Transparency Index. Most of these indicators are highly coordinated. Therefore, differences in their methodologies are not decisively important (Woodruff 2006). However, survey-based measurements have two drawbacks (Voigt 2013). Firstly, it is subjective and relies on the opinions of academics, experts, consultants, and practitioners. Due to its subjectiveness, there is always a risk of biasedness. In times of economic fortune, the respondents could evaluate the institutional environment higher and vice versa. Secondly, the respondent could describe and evaluate the result of institutions rather than directly institutions themselves.

The main studies on institution growth nexus tend not to introduce the effect of *economic* and *political* institutions separately. It is usually hard to delineate political and economic institutions because they strongly formulate each other. Acemoglu, Johnson, and Robinson (2005) define economic institutions as constraints and incentives on economic actors while political institutions as incentives and constraints on political actors in the political sphere. They state that political institutions have a deterministic hierarchy on

economic institutions. Voigt (2013) claims that economic institutions are more flexible than political institutions. Political institutions are constraining, while economic institutions are enabling. Additionally, sanction to fail to comply with economic institutions is more accurately defined than political institutions. Nevertheless, economic outcomes are mainly determined by the co-effect of political and economic institutions. Therefore, it is possible to evaluate the effect of institutions on economic growth without separating them into political and economic ones.

Shortly after the transition started, a vast number of studies emerged to measure the effect of the market reforms on economic performance in post-socialist countries (Melo, Denizer, and Gelb 1996; Heybel and Murrel 1998; Staehr 2003; Falcetti, Lysenko, and Sanfey 2006; Ian and Compos 2007; Pelipas and Chubrik 2008). As sufficient time passed, the interest in the econometric evaluation of the impact of institutional development on economic growth in transition economies emerged. The institution is a complex phenomenon, and evaluation of the impact of the institutions on economic growth requires more suitable proxy indicators. The various proxy indicators for institutions have been used, and it is necessary to find an adequate indicator that better represents the efficiency of the institutions. The pioneering research used the EBRD transition indicators and their averaged versions (Havrylyshyn and van Rooden 2000; Raiser, Tommaso, Maria, and Weeks 2001; Sach 2001; Beck and Leaven 2006. Redek and Susjan 2005; Paakonnen 2010) use the Heritage Foundation freedom index. Hartwell (2013) employs the contract-intensive money indicator, while Lane and Rohner 2004 employ the World Bank governance indicators. I use the Rule of Law indicator from the World Bank Governance indicators. "The Rule of Law *reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence*." This definition of the Rule of Law coincides with the character of economic institutions providing certainty about the future of today`s economic decisions by agents. In this research the robustness test based on the Property Right Index from Heritage Foundation has been conducted. The EBRD transition indicators evaluate the state of the building market institutions rather than the trust in property rights and contract

enforcement. Therefore, use these indicators have not been used as a proxy for property rights institutions.

To overcome the endogeneity problem, previous studies used simultaneous equation models such as Two Stage Least Squares (TSLS), Generalized Method of Moments (GMM) (Efendic, Pugh, and Adnett 2009; Paakonen 2010; Hartwell 2013). The sample size of the data in this research is small (N=7), but TSLS and the GMM work well with the large sample size. Again, the FMOLS is the most appropriate regression model for the small sample. The FMOLS model is used in an econometric evaluation of the effect of the institutions on economic growth in these regions. The following formula presents the model:

$$\Delta Y_{i,t} = \alpha + \beta_{i,t} X_{i,t} + Z_{i,t} + \varepsilon_{i,t} \qquad (8)$$

The dependent variable, $\Delta Y_{i,t}$ is the GDP per capita growth rate. $X_{i,t}$ is a proxy variable for the property rights institutions. The rule of law indicator is used by the World Bank Governance Indicators. At the same time, the regressions with the Heritage Foundation Property Right Index have been introduced. $Z_{i,t}$ are the control variables that also have an effect on economic growth. These are the Rent, the relative level of economic development, and Investment. As mentioned frequently throughout the thesis, the rent income in the form of worker remittances in Armenia and Georgia and oil rent in Azerbaijan has a considerable place in and effect on the South Caucasian economies. The Convergence Theory claims that countries at a lower level of development can experience a higher economic growth rate. The South Caucasian countries are at a lower stage of economic development than V4 countries. Therefore, it can play a role in differing rates of economic growth in these regions. Early studies on economic growth in the transition economies suggested that the post-socialist economies had been based on heavy investment. The main barrier to economic growth was the misallocation of resources rather than underinvestment. Therefore, they did not consider that investment can explain the economic performance in post-socialist economies. However, a considerable period has passed since the early transition, and investment can regain its explanatory power in economic growth. Investment is included as a control variable. The analysis covers 1995-2019 in the case of the Heritage Foundation Property Rights. The World Bank Governance

included Rule of Law Index was issued in 1996. Therefore, the regression analysis with the Rule of law index includes the 1996-2019. The World Bank Governance indicators were issued biannually until 2002. Therefore, the average value of the dependent and independent variables until 2002 is used. The GDP per capita growth and the Rule of Law come from the World Bank Governance Indicators. The Investment is the gross fixed capital formation from World Bank Development Indicators. The Rent is calculated as a sum of the share of remittances in GDP and the natural rents from the World Bank Development Indicators. The relative level of development is computed as a ratio of the GDP per capita of each country in a given year to the GDP per capita in the USA in the same year.

Table 20. Breusch-Pagan LM test (Cross section dependence test)

Test	Statistic	Prob.
GROWTH	139.62	0.0000
RENT	109.91	0.0000
Yi/Y_{us}	398.55	0.0000
INVESTMENT	61.36	0.0000
ROL	149.08	0.0000
HFPR	89.59	0.0000

Table 21. Panel Unit Root Test ((Assumption of cross-sectional dependence)

Variables		Level	First Difference
Peseran-CIPS	GROWTH	-2.11	-2.89**
	RENT	-0.58	-2.35**
	Yi/Y_{us}	-1.04	-3.35***
	INV	0.000	-2.48***
	ROL	-1.03	-3.06***
	HFPR	-1.20	-3.13***

Table 20 shows the existence of the cross-sectional dependence. Therefore, I employ the Peseran-CIPS test. The Peseran-CIPS test shows that all series are I (1).

Table 22A. Panel Cointegration Test (Rule of Law)

Methods	Within dimension (panel statistics) (homogeneous)		Between dimension (heterogeneous)	
	Test Probability	Statistics	Test Probability	Statistics
Pedroni Residual Cointegration				
Panel v-Statistic	0.66	0.2515	Group rho-Statistic	1.18 0.8818
Panel rho-Statistic	0.32	0.6244	Group PP-Statistic	-4.54 0.0000
Panel PP-Statistic	-2.47	0.0060	Group ADF-Statistic	-4.05 0.0000
Panel ADF-Statistic	-2.32	0.0133		

Methods	Within dimension (panel statistics) (homogeneous)		Between dimension (heterogeneous)	
	Test Probability	Statistics	Test Probability	Statistics

Table 22B. Panel Cointegration Test (Heritage Foundation, Property Right Index)

Pedroni Residual Cointegration					
Panel v-Statistic	1.18	0.1181	Group rho-Statistic	0.87	0.8018
Panel rho-Statistic	0.03	0.5144	Group PP-Statistic	-3.31	0.0005
Panel PP-Statistic	-2.92	0.0010	Group ADF-Statistic	-3.05	0.0013
Panel ADF-Statistic	-3.46	0.0003			

After the Panel Unit Root and Cointegration tests, the FMOLS test has been conducted. Both rent and investment have a positive effect on economic growth, as expected. Relative income variable is negative, which is in compliance with the convergence theory. In both regions, the rule of law has a positive association with economic growth. The robustness test shows a similar result; the protection of property rights positively affects economic growth in both regions.

Table 23. FMOLS (Rule of Law)

	COEFFICIENT	**T-STATISTICS**
INVESTMENT	175***	278
RENT	69.36***	1268
YI/YUS	-89.09***	-4.72
ROL	33.9***	83.18
ROL*V4	16.12***	2.77
ROL*SOUTH CAUCASIA	42.17***	415.1

Table 24. FMOLS (Heritage Foundation, Index of Protection of Property Rights)

	COEFFICIENT	T-STATISTICS
INVESTMENT	-0.002	-0.05
RENT	0.55***	12.86
YI/YUS	-22.76***	-1806
HF.PR	0.09	1.34
HF.PR*V4	0.45***	3.45
HF.PR*SOUTH CAUCASIA	0.24**	2.46

The econometric analysis shows that the rule of law has a positive association with economic growth in the V4 and South Caucasian countries. The presence of the rule of law may create incentives to invest in productive activities.

3.5. Particular Institutions and Economic Growth

It is accepted that functioning market institutions and property rights institutions are undeniable requirements for enabling a more efficient way of production and, consequently, for economic growth. However, they alone cannot fully explain the economic growth in the V4 and South Caucasian countries. Therefore, it is necessary to analyze the effect of specific institutions, such as the product market, labor market, innovation, and education, on the economic performance in these regions.

Product Market Institutions entail the regulation of the entry barriers to firms and key policy areas, such as licensing, price controls, public procurement, foreign trade, and governance of the SOEs. The regulation of the product markets determines the state of the competitive environment in the national economy. An immense amount of studies emerged to evaluate the impact of product market regulation and competition policy on economic performance (Convey, Janod, and Nicoletti 2005; Buccirossi, Ciari, Duso, Spagnolo, and Vitale 2013). Studies evaluate the effect of competition policies on economic growth via their impact on innovation. One strand of the literature follows the Schumpeterian approach and claims that a competitive business environment enables “creative destruction” and replacement of the less productive firms with new, more productive ones (Aghion,

Dewatripont, and Rey 1999). Conway, De Rosa, and Nicoletti (2007) claim that countries with liberal product markets can benefit more from the improvement in global technological frontiers than countries with restrictive product markets. Another study line claims that harsh

Table 25. Competition Policy

	1995	2000	2005	2010	2014
Czechia	3	3	3	3.4	3.4
Hungary	3	3	3	3.4	3.4
Poland	3	3	3	3.4	3.7
Slovakia	3	3	3	3.4	3.4
Armenia	1	1	2.4	2.4	2.4
Azerbaijan	1	2	2	2	1.7
Georgia	1	2	2	2	2

Source: *EBRD Transition Reports*

competition discourages companies from innovating (Aghion and Howitt 1992). Innovation requires a lot of resources, and companies would undertake such spending on innovation with the expectation of reaping the benefits of their spending in the form of more productivity for efficient production or increased price for a new, better product. However, rival companies would innovate in the harsh competition environment, making the innovation of the company obsolete or ordinary and eroding the monopolistic rent. Therefore, the company could not fully bear the fruit of its investment in innovation and would be reluctant to spend on innovation.

Enterprises were state-owned and supported by government resources to reach the targeted plan, and they did not compete with each other for market share and to achieve a lower cost of production. Transition to the market economy changed the main motive of the enterprises from the fulfillment of the plan to profit-maximizing. It necessitated accepting the rules of the regulation of the competition among the enterprises in the product markets. Building the laws and regulation of the competition had been the central part of the market reforms in the V4 countries since the beginning of the transition, and their

achievement until the mid-1990s is considerable (Table 25). EU integration required further reforms and harmonization of the competition laws to the EU-level laws. It was suspected that new member countries would protect their uncompetitive companies by non-complying with the EU competition laws (Holscher and Stephan 2004). However, V4 countries reached an agreement with the EU on the competition laws in 1995 and achieved a considerable improvement in the pre-and post-accession period (Dutz and Vagliasindi 2000). The competition laws entailed mainly the telecommunication, financial, utility, energy, and mining sectors.

The South Caucasian countries started to initiate the competition laws later than the V4 countries. The first governmental body on the antimonopoly service was established in 1995 in Georgia. Still, its functioning was under question due to the prevailing corruption and lack of a strong state to enforce the rules (Orjonikidze 2018). As in other CIS countries, there is a high concentration of market power in the South Caucasian countries (Friesenbichler and Boheim 2014). Some steps were taken to provide a competitive environment in South Caucasia, but they are incomplete and formal, and informal barriers to entry to markets are still high.

Labor Market Institutions. There are various approaches to the role of the regulation of labor markets and its effect on economic growth. Innovation would reduce the demand for labor and necessitate layoffs, but strict protection of labor increases the cost of workforce adjustment, discouraging the companies from conducting innovations (Bassanini and Ernst 2002). However, the effect of labor market flexibility on innovation depends on the knowledge intensity of the industry. In the low knowledge-intensity sectors, flexible labor regulation can support innovation, but the opposite would occur in the high knowledge-intensive sectors with a "routinized" innovation regime. In the latter sectors, companies invest in firm-specific knowledge in their workers, and incremental innovation depends on the workers with firm-specific knowledge. Therefore, there should be trust between the company and workers and employment protection supporting firm-specific knowledge accumulation (Vergeer, Dhont, Kleinknecht, and Kraan 2015). Saha (2006) compares the effect of employment regulation on economic growth in India and China. He finds that flexible labor markets supported industrial growth in China, while strict

employment protection in India had a negative effect on the labor-intensive manufacturing sector. The Production and export in these countries are mainly low-skilled and semi-skilled. Therefore, labor market flexibility could support productivity growth by providing the necessary flexibility to entrepreneurs. However, labor market regulation mainly affects formal employment relations, while informal employment stays outside. Informal companies have inferior management, are small or tend to be small to avoid being taxed and regulated by the government, their access to external finance is limited, and they are less capital intensive. Therefore, informal firms and workers in these firms are less productive, which can affect the national economic performance negatively (Ulyssea 2020).

The governments in the socialist period promised to provide employment to each working-age person and could sustain their legitimacy by keeping that promise. Additionally, profit was not a criterion. Therefore, enterprises were not sensitive to labor costs (Granick 1987). Both together produced an excessive demand for labor. In these regards, there was no need for labor regulation laws as in the capitalist world. However, the government receded from its full employment promise, and enterprises had to take the labor cost into consideration in the post-socialist era. Therefore, it had been necessary to establish an institution to regulate the hiring and firing of workers. To alleviate the forthcoming massive layoffs, stricter employment regulation was introduced in most transition economies (Lehman and Muravyev 2011). However, employment protection was less strict in Hungary and Poland in the first decade of the transition, which produced larger layoffs. Nevertheless, these countries' welfare spending reduced the social cost of massive unemployment. As a part of the EU integration, they increased employment protection (Table 26). After the Rose Revolution in Georgia, the expectation of the Saakashvili government from economic liberalization was extremely high and liberalized labor regulation at an unimaginable level. The negative economic effect of the 2008/09 global financial crisis was high and lasting in Armenia. Therefore, the Armenian government initiated a modest liberalization of the labor markets. Azerbaijan had the highest level of employment protection in South Caucasia. However, the currency crisis in 2015 necessitated economic reforms, and a moderate labor market liberalization was conducted.

Table 26. Employment Protection Legislation

Country/Years	1995	2000	2005	2010	2015	2019
Czechia	2.07	2.09	2.30	2.27	2.27	2.27
Hungary	1.31	2.00	2.17	2.17	2.15	2.15
Poland	1.48	2.11	2.28	2.28	2.28	2.28
Slovakia	2.26	2.84	2.42	2.75	2.54	2.71
Armenia	1.82	2.19	2.08	2.08	1.81	1.81
Azerbaijan	2.1	2.41	2.32	2.32	2.32	2.09
Georgia	1.69	1.78	1.91	0.41	0.71	0.71

Source: *OECD Employment Protection Index, Lehman, and Muravyev (2011)*

The existence of the informal economy and informal employment depends on their hiding. Therefore, it is hard to have statistics on informal employment. However, self-employment can be considered a proxy for informal employment because it is easy for them to hide their activity. Therefore, the self-employment rate is used to approximate informal employment in these regions. Self-employment has been higher in Poland in the V4 region and has declined considerably. A large number of small farms can explain such a high rate in Poland.

Table 27. Self-employment (% of total employment)

Country/Years	1994	2000	2005	2010	2015	2019
Czech Republic	11.97	15	16.02	17.73	17.34	16.8
Hungary	17.94	15.23	13.69	12.32	10.85	10.83
Poland	30.94	27.38	25.75	22.98	21.23	20.01
Slovak Republic	6.76	7.91	12.68	15.97	15.16	15.05
Armenia	43.91	49.33	46.67	43.14	42.8	33.97
Azerbaijan	58.18	68.41	69.67	68.06	67.71	67.85
Georgia	48.12	61.66	65.43	58.81	53.65	49.71

Source: *World Bank Development Indicators*

In South Caucasia, self-employment is more than double the V4 level, approximately half of the total employment (Table 27). The higher level of small-scale family farming can be behind such a high level of self-employment in South Caucasia, and the majority of family farming stays informal in this region. Another understanding of self-employment is their

entrepreneurial potential. But formal employment is scarce in South Caucasia. Therefore, self-employment probably is the last resort for employment in low-value activities rather than pursuing the entrepreneurial spirit.

Institution of Innovation. Innovation as a new and more efficient way of production is important for economic growth (Fagerberg, Srholec, and Verspagen 2010). Innovation is a multifaceted term covering both product and organizational novelty and cannot be reduced to a single variable - Research and Development (R&D) (Lee 2013). The necessary capabilities for innovation can be categorized under three classifications: production capabilities, technology capabilities, and R&D and knowledge intensity capabilities (Radosevic and Yoruk 2016). The importance of each capacity for economic growth differs according to the level of economic development (Radosevic and Yoruk 2018). "Production capability is the capability to produce at a given technology level at world levels of efficiency and productivity. This requires good operational efficiency and skilled technical and blue-collar workforce" (Radosevic and Yoruk 2016, pp 13). Technology capacity is an improvement to the existing production and process and requires skilled engineers. The R&D and knowledge intensity capacity is the creation of new knowledge at the global technological frontiers. Low-income and significant part of middle-income countries behind the technological frontiers innovate based on production capacity. In contrast, high-income countries on technological frontiers innovate and grow based on the R&D and technology capabilities (Bell and Pavitt 1993, Radosevic and Yoruk 2016).

Both regions had a deformed version of the innovation system in the socialist period. The main distinguishing feature of the "deformed" socialist innovation system was externalized R&D and engineering. Innovation mainly targeted product innovation; innovation was produced as a "commodity" outside the enterprises. Enterprises were not business entities; they were production units and did not fully develop into knowledge accumulation institutions. Therefore, they had a weak technology creation capacity. The innovation in the specific institutions is directed toward investment and solving the major bottleneck in production rather than continuous improvement (Radosevic 1999). However, the centralization of innovation differed among socialist countries. Based on the high share of patents by enterprises, Hungary and Czechoslovakia had more decentralized innovation.

While enterprises were marginal in patent applications in the USSR, including South Caucasia, the innovation system was extremely centralized (Radosevic and Kutlaca 1999).

The collapse of centralized and plan-based production created a new form of innovation system in these regions. As usual in market economies, enterprises turned into business units from the production units, which made them an important part of the innovation system. The V4 region has been capable of preserving and developing its industrial base. West and East Europe, including V4 countries, have a historically rooted specialization in chemicals, metallurgy, and mechanical engineering. At the same time, they are disadvantaged in the electrical engineering sector, which is dominated by North America, Israel, and Asia Pacific (Lacase, Gibler, and Radosevic 2017). Such specialization affected technological development in the V4 region. Technological dynamism in chemicals, metallurgy, and mechanical engineering is considerably slow, while the opposite is true for electronic engineering. The number of patent applications can be an appropriate indicator of technological capability (Krastsova and Radosevic 2012). Table 16 shows a substantial decline in the number of patent applications in the V4 countries except for Poland. Technological dynamism in the sectors in which V4 countries are specialized is slow. Additionally, incremental innovation in these sectors is not easily patentable. At the same time, FDI-led modernization also affected the number of patents and technological innovations by enterprises in this region. The larger companies are competent in technological development, and the MNCs dominate them. The MNCs mainly conducted technological innovation in their headquarters while bringing ready technology to the V4 economies rather than creating it here. Radosevic (2017) shows that production capability had been the driver of the economic growth in CEE, and technological capability and R&D did not play an important role in post-socialist growth.

Table 28. The patent application (per million inhabitants)

Country/Years	1995	2001	2005	2010	2015	2019
Czech	340.7	465.1	81.3	93.8	90.3	76.2
Hungary	279.7	534.8	119.2	69.6	64.3	46.1
Poland	100.0	170.7	172.5	90.2	126.8	105.3
Slovakia	311.3	361.0	46.5	52.3	47.2	42.9
Armenia	88.6	50.8	69.8	49.4	39.3	39.2
Azerbaijan	32.7	26.3	34.2	29.9	19.1	16.7
Georgia	151.8	118.3	121.7	95.6	72.7	53.0

Source: *World Bank Development Indicators*

Although it was inefficient and non-mature, there was technology-intensive industrial production in South Caucasia in the socialist period. However, they could not preserve and modernize their industrial base and lost it to the transition shock and global competition. Most large companies with the capacity for technological innovation shut down. Replacement of the soviet style organization of production with the market version could stand for the part of efficiency improvement in production and overall economic growth consequently. Such replacement can be considered an improvement in the production capacity. The ISO 9000 certification sets the production standard and can be used as a good proximate indicator for production capacity. The increase in ISO certificates in the V4 countries is higher than in South Caucasia at an incomparable level (Table 29). MNCs required both their subsidiaries and domestic suppliers to acquire ISO certificates. At the same time, access to the EU market requires some quality standards for the products, and ISO certificates are part of such quality requirements. However, enterprises in South Caucasia also increased the efficiency of the production method. Still, there is no push and pull factors as in V4 for applying ISO certificates, which can explain part of the gap between these regions. The remaining part of the gap can be explained by the larger share of enterprises with more sophisticated activities.

Table 29. ISO certificates (per one million inhabitants)

	1995	2000	2005	2010	2015	2019
Czezhia	17	376	1248	1551	1010	1166
Hungary	30	458	1533	808	588	727
Poland	3	54	255	321	281	302
Slovakia	11	97	382	722	1048	712
Armenia		1	18	21	9	10
Azerbaijan		0	25	11	25	21
Georgia		2	6	19	23	48

Source: *ISO Database*

Except for Slovakia, all V4 countries doubled the share of their R&D spending in GDP. A considerable part of the increase in R&D spending in V4 can be related to getting funding through the EU Innovation and Research Policy (Czelleng and Vertes 2021). The R&D increased the capacity of the companies in the CEE, including V4, to absorb foreign technologies (Prokop, Stejskal, Klimova, and Zitek 2021). However, the R&D spending remained extremely low in South Caucasia. It can be said that most of the firms in South

Table 30. R&D spending (% of GDP)

Country/Years	1996	2000	2005	2010	2015	2019
Czech Republic	0.89	1.11	1.17	1.34	1.93	1.99
Hungary	0.63	0.79	0.92	1.14	1.35	1.48
Poland	0.64	0.64	0.56	0.72	1.00	1.32
Slovak Republic	0.89	0.64	0.49	0.61	1.16	0.83
Armenia	0.18	0.19	0.26	0.24	0.25	0.18
Azerbaijan	0.24	0.34	0.22	0.22	0.22	0.2
Georgia	0.33	0.22	0.18		0.30	0.28

Source: World Bank Development Indicators

Caucasia are small; therefore, R&D initiatives and spending are not recorded. Therefore, we can claim that these statistics don't fully catch the R&D spending in South Caucasia. As

in other CIS countries, in South Caucasia also, R&D is targeted to preserve the science potential of the countries acquired during the socialist period. And it occurred mainly in the scientific institutions without a link with the economy. Therefore, it could not benefit the development of the technological capacity of the domestic economy (Radosevic 2003; Poghosyan 2012).

Education. It is accepted that education positively affects economic growth (Krueger and Lindahl; Hanushek and Weissman 2007). The positive effect of education on economic growth occurs through three channels: Firstly, education increases human capital, contributing to productivity growth (Mankiw, Romer, and Weil 1992). Secondly, it increases the knowledge of new technologies, products, and processes, which may expand the innovation capacity of the national economy (Lucas 1988; Aghion and Howitt 1998). Lastly, education can promote economic growth by facilitating the diffusion and transmission of the knowledge necessary for successfully implementing new technologies (Benhabib and Spiegel, 2005). Both basic (primary and secondary) and advanced (tertiary) education are important for economic growth. Still, regarding the level of economic development, their relative importance in driving further economic growth differs. Economies of low-income countries are technologically simpler; therefore, the demand for basic skills is stronger than for high skills (Hanushek 2013). However, the demand for high-skilled workers increases as countries advance in the technology ladder (Vandenbussche, Aghion, and Meghir 2006). Therefore, the underdevelopment of secondary education may be a binding constraint on economic growth in low-income countries. Still, higher education is more important for technological development in upper-middle-income and higher-income countries (Lee and Kim 2009). According to the latest classification of the countries by income, V4 countries are in high-income and South Caucasia in upper-middle income groups. Therefore, higher education may play a more important role in upgrading their technological capability and promoting economic growth. Additionally, universal basic education was a main part of the socialist ideology, and both regions already had nearly 100 percent basic education in socialist times and have preserved it until now. Therefore, comparing the unchanging indicator would not be helpful to explain the differencing effect of education on growth in these regions. Considering both

arguments, the effect of Higher Education (HE) on economic growth in V4 and South Caucasia is focused upon.

Table 31. Tertiary education (enrollment rate % gross)

COUNTRY/YEAR	1989	1995	2000	2005	2010	2015	2019
CZECHIA	16.3	20.6	28.3	48.3	63.9	64.5	65.6
HUNGARY	14.3	22.2	35.9	65.0	63.7	49.0	52.4
POLAND	19.2	31.2	49.7	63.6	74.8	66.9	69.2
SLOVAKIA	14.3	18.6	28.4	40.4	57.1	50.7	46.4
ARMENIA	20.4	19.1	35.5	39.5	53.0	46.5	51.5
AZERBAIJAN	24.4	18.4	19.4	19.3	19.3	25.5	31.5
GEORGIA	36.2	43.5	39.1	51.4	32.6	46.5	63.9

Source: *World Bank Development Indicators*

The socialist system in these regions formulated its way of higher education. The higher education system was designed to serve the economic planning system. The research was separated from higher education. The role of higher education institutions was to prepare the workforce for the socialist economy based on the requirement of the central planning system, and the planning system was responsible for the job placement of the graduates (Smolontseva and Huisman 2018). After the collapse of the socialist system, higher education ceased to be a system of manpower planning. Higher education was under the state monopoly, and the state-financed the cost of it. However, the higher education system was opened to marketization in the post-socialist period. Both private higher education institutions were allowed, and fee-paying education emerged. The result of the marketization of higher education has been its expansion in both regions (Table 31). In contrast to the engineering-oriented education system of the socialist period, soft fields, such as business studies, economics, law, and foreign language, became dominant fields in the post-socialist period (Smolontseva and Huisman 2018). However, the rise of the soft fields based on the demand of the labor markets is a global trend and is not only related to the post-socialist countries.

The new era required both a new approach to the education policy and the regulation of the marketized higher education system. The South Caucasian government neither had the capacity nor was willing to implement a well-designed education policy and the HE evolved mainly in a sporadic environment. In the reality of the rapid liberalization of higher education, there were no appropriate quality standards for private universities, and enforcement of the existing standards was weak. Therefore, the quality of higher education did not accompany the rapid expansion of tertiary education (Smolontseva and Huisman 2018). Additionally, corruption in HE became rampant in this period, both in the admission procedures and academic process, which demoralized the academic system (Chakhaia and Bregvadze 2018; Isakhanli and Pashayeva 2018). Nevertheless, the South Caucasian states have increased their capacity since the mid-2000s. In this regard, it became impossible to ignore the quality degradation in the HE system, and they took measures to increase the quality of higher education. As a result, non-qualifying universities left the HE system. In contrast to South Caucasia in the first decade of the transition, the HE system did not experience degradation in the V4 countries. The self-governance, autonomy, and academic freedom was regranted to universities, and governments were able to set regulation and quality standards (Dobbins 2011). However, the rules for establishing a private university were most liberal in Poland; therefore, the number of private non-research universities and tertiary enrollment increased dramatically (ibid). Countries in both regions joined the worldwide trend in education, mainly through the Bologna process, and it contributed positively to both efficiency and excellence of higher education (Smolontseva and Huisman 2018).

One of the barriers to upgrading the quality of higher education is the inadequacy of finance. Being a scholar had been prestigious in the socialist period. Still, the status of this occupation declined dramatically in the post-socialist period due to low salaries and overloads in South Caucasia, especially in Armenia. The result was that highly qualified scholars left academia, and less qualified filled their vacancies. Its negative effect on the quality of higher education would be considerable (Karakhanyan 2018). The teaching staff salaries are not competitive in the V4 countries either. While the number of students quadrupled in Poland between 1990 and 2010, the increase in the infrastructure and the number of teaching staff were weak. The low academic salaries did not attract others, and

multi-jobbing among teachers became prevalent in Poland (Biernacki 2012). Despite the marketization of higher education, state funding is significant in the V4 countries. The expansion of higher education necessitates increasing the education budget. The result is again a lack of research funding and underpaid teaching staff, which negatively affects the quality of higher education (Dobbins and Knill 2011). However, the necessity of the quality of higher education and the inevitability of increasing the salaries of the higher education staff for higher quality education has been recognized in both regions recently, and some measures have been taken, and promises have been made in this direction.

3.6. Econometric analysis of the effect of particular institutions on economic growth

In this section, the effect of each mentioned particular institution on economic growth in V4 and South Caucasia is evaluated. The following formula describes the econometric model:

$$\Delta Y = \alpha + \beta_{i,t} X_{i,t} + Z_{i,t} + \varepsilon_{i,t} \qquad (9)$$

ΔY is GDP per capita and represents the dependent variable. $X_{i,t}$ is a set of explanatory variables representing particular institutions. $X_{i,t}$ includes ($COMP_{i,t}$, $EMPL_{i,t}$, $Self\text{-}EMPL_{i,t}$, $ISO_{i,t}$, $Patent_{i,t}$, $R\&D_{i,t}$, $Tert_{i,t}$). $COMP_{i,t}$ is the variable that describes the level of the competition policy in a given country, and it is sourced from the EBRD Transition Report. This variable evaluates the effect of product market competition on economic growth in these regions. $EMPL_{i,t}$ is the Employment Protection Legislation Index and describes the stringency of the labor markets. There is data for the V4 countries in OECD Datasets. Muravyev and Lehman (2011) provide the EMPL for CIS countries, including South Caucasia, for 1995-2009. The 2010-2019 is constructed for South Caucasia based on the World Bank Data Regulations of Employment data, applying the same principle of Muravyev and Lehman (2011). $Self\text{-}EMPL_{i,t}$ is the data for the share of self-employment in total employment. There is no serial data for informal employment; therefore, self-employment is used as a proxy variable for informal employment. The EMPL and SELF-EMPL evaluate the effect of the labor market institutions on growth in these regions. $ISO_{i,t}$ is the number of ISO certificates per million inhabitants by each country in a given year. It represents the innovation in production capabilities. The source of this data is the ISO

Datasets. The $Patent_{i,t}$ is the number of patent applications per a million inhabitants and stands for innovation in a technology capacity. The $R\&D_{i,t}$ is the share of the R&D spending in GDP and explains the knowledge-intensity capacity. The $Tert_{i,t}$ is the share of the tertiary enrollment in the total enrollment and represents the effect of the education institutions. As control variables, $Z_{i,t}$ include ($INV_{i,t}$, $RENT_{i,t}$, $Y_{i,t}/Y_{US}$). The INV stands for investment and is the ratio of gross capital formation to GDP. As in the previous chapter, the RENT is the sum of the share of the remittances and oil rents in GDP. $Y_{i,t}/Y_{US}$ represents the convergence ratio; countries at the lower level of development tend to grow at a higher speed. The GDP per capita growth, Self-Employment, Patent, R&D, Tertiary Education, Investment, Rent, and Convergence ratio are sourced from the World Bank Development Indicators. Except for the Competition Policy, all variables cover 1995-2019. The EBRD Transition Indicators are available until 2014; therefore, the data for the COMP is 1995-2014.

As mentioned in the previous chapter, FMOLS has advantages over static OLS, such as more suitability for a small sample, alleviating endogeneity problems, etc. Therefore, it is employed in the Panel FMOLS here too.

Table 32. Breusch-Pagan LM test (Cross section dependence test)

Test	Statistic	Prob.
GROWTH	139.62	0.0000
RENT	109.91	0.0000
Yi/Y_{us}	398.55	0.0000
EMPL	127.73	0.0000
SELF-EMPL	165.02	0.0000
TERTIARY	89.59	0.0000
ISO	139.05	0.0000
PATENT	110.93	0.0000
R&D	111.27	0.0000
COMPETITION	142.09	0.0000

Table 33. Panel Unit Roots Test (Assumption of cross-sectional dependence)

Variables		Level	First Difference
Peseran-CIPS	GROWTH	-1.16	-2.89**
	RENT	-0.58	-2.35**
	Yi/Y_{us}	-1.04	-3.35***
	EMPL	-1.83	-4.14***
	Self-Empl	-1.08	-1.94**
	Tertiary	-0.13	-2.82***
	ISO	-1.13	-2.54***
	Patent	-1.87	-3.34***
	R&D	-0.73	-2.34***
	Competition	-0.88	-2.86***

Breusch-Pagan LM test indicates the presence of cross-sectional dependence; therefore, the Peseran-CIPS unit root test is employed. The Peseran-CIPS shows that all variables are I (1).

The Pedroni Residuals Cointegration Tests is used. The Pedroni Cointegration test null hypothesis is that there is no cointegration among variables. In all models, four out of seven cointegration tests reject the null hypothesis. Therefore, it can be claimed that there is cointegration among variables in all models.

Table 34 A. Panel Cointegration Test (Competition Policy)

Methods	Within dimension (panel statistics) (homogeneous)			Between dimension (heterogeneous)		
	Test	Statistics	Probability	Test	Statistics	Probability

Pedroni Residual Cointegration					
Panel v-Statistic	0.43	0.33	Group rho-Statistic	0.71	0.96
Panel rho-Statistic	0.84	0.80	Group PP-Statistic	-2.82	0.00
Panel PP-Statistic	-1.72	0.04	Group ADF-Statistic	-1.96	0.02
Panel ADF-Statistic	-1.97	0.02			

Table 34B. Panel Cointegration Test (Labor Markets)

Methods	Within dimension (panel statistics) (homogeneous)		Between dimension (heterogeneous)		
	Test	Statistics	Probability	Test	Statistics	Probability
Pedroni Residual Cointegration					
Panel v-Statistic	0.93	0.17	Group rho-Statistic	0.67	0.74
Panel rho-Statistic	0.07	0.53	Group PP-Statistic	-3.19	0.00
Panel PP-Statistic	-2.25	0.01	Group ADF-Statistic	-2.64	0.00
Panel ADF-Statistic	-2.28	0.01			

Table 34C. Panel Cointegration Test (ISO)

Methods	Within dimension (panel statistics) (homogeneous)		Between dimension (heterogeneous)		
	Test	Statistics	Probability	Test	Statistics	Probability
Pedroni Residual Cointegration					
Panel v-Statistic	1.00	0.15	Group rho-Statistic	0.40	0.65
Panel rho-Statistic	0.67	0.24	Group PP-Statistic	-4.25	0.00
Panel PP-Statistic	-3.06	0.00	Group ADF-Statistic	-2.81	0.00
Panel ADF-Statistic	-2.45	0.00			

Table 34D. Panel Cointegration Test (Patent)

Methods	Within dimension (panel statistics) (homogeneous)		Between dimension (heterogeneous)		
	Test Probability	Statistics	Test	Statistics	Probability
Pedroni Residual Cointegration					
Panel v-Statistic	1.11	0.13	Group rho-Statistic	-0.13	0.44
Panel rho-Statistic	-0.81	0.20	Group PP-Statistic	-3.96	0.00
Panel PP-Statistic	-3.23	0.00	Group ADF-Statistic	-3.43	0.00
Panel ADF-Statistic	-2.64	0.00			

Table 34E. Panel Cointegration Test (R&D)

Methods	Within dimension (panel statistics) (homogeneous)		Between dimension (heterogeneous)		
	Test Probability	Statistics	Test	Statistics	Probability
Pedroni Residual Cointegration					
Panel v-Statistic	0.86	0.19	Group rho-Statistic	0.63	0.73
Panel rho-Statistic	0.06	0.52	Group PP-Statistic	-3.94	0.00
Panel PP-Statistic	-2.23	0.01	Group ADF-Statistic	-1.90	0.03
Panel ADF-Statistic	-1.91	0.03			

Table 34F. Panel Cointegration Test (Education)

Methods	Within dimension (panel statistics) (homogeneous)		Between dimension (heterogeneous)		
	Test Probability	Statistics	Test	Statistics	Probability
Pedroni Residual Cointegration					
Panel v-Statistic	1.66	0.04	Group rho-Statistic	0.30	0.37
Panel rho-Statistic	-1.27	0.10	Group PP-Statistic	-5.94	0.00
Panel PP-Statistic	-3.66	0.01	Group ADF-Statistic	-4.46	0.00
Panel ADF-Statistic	-3.33	0.00			

The FMOLS results show the long-run effect of the particular institutions on economic growth in these regions. The competitive environment has a positive and significant effect on growth in the V4 region. The monopolistic and rigid structure of the socialist economy did not allow to reduce the inefficiency. It seems that shifting from such a monopolistic system to a competitive atmosphere forced enterprises to target inefficiencies in their business to survive, contributing positively to economic growth in these regions. However, the association between competition policy and economic growth is negative in South Caucasia. The reforms in the competition policy are incomplete in this region. They did not stay the same as in the socialist period but haven't achieved a threshold level of the competitive environment. Therefore, it cannot contribute to the economic growth in this region.

Table 35. FMOLS (Competition)

	COEFFICIENT	**T-STATISTICS**
INVESTMENT	0.33***	3.41
RENT	2.25***	4.22
YI/YUS	-27.92***	-14.97
COMPETITION	1.39***	14.89
COMPETITION*V4	10.05***	7.54
COMPETITION*SOUTH CAUCASIA	-6.97***	-14.27

Surprisingly, the strictness of the employment regulation shows a positive association with economic growth. The enforcement of employment regulation covers the mainly formal sector of the economy. The formal sector is more skill-intensive, and it can be argued that the protection of employment in the formal sector contributes positively to the accumulation of firm-specific skills and, consequently, to productivity. Informal employment has a positive effect on economic growth in South Caucasia, while its effect is negative in V4. The economies of the South Caucasian countries are not knowledge-

intensive; therefore, the informality of the labor market provides flexibility for business entities. Therefore, the flexibility of informal employment can spur the firm adjustment and reallocation of labor across firms in South Caucasia. V4 economies need skill accumulation more than flexibility; therefore, informal employment shows a negative association with the economic growth in this region.

Table 36. FMOLS (Labor Market Institutions)

	COEFFICIENT	T-STATISTICS
INVESTMENT	0.03	0.59
RENT	0.43***	13.1
YI/YUS	-21.5***	-1808
EMPL	2.07***	37.14
EMPL*V4	0.9***	10.47
EMPL*SOUTH CAUCASIA	2.82***	24.64

Table 37. FMOLS (Informal Employment)

	COEFFICIENT	T-STATISTICS
INVESTMENT	0.03	0.81
RENT	0.44***	16.41
YI/YUS	-19.38***	-1837
SELF-EMPL	0.1***	4.25
SELF-EMPL*V4	-0.12***	-3.52
SELF-EMPL*SOUTH CAUCASIA	0.3***	5.72

A positive association exists between the number of ISO certificates per a million population and growth. Innovation in the form of enhancing production capacity plays a role in the economic growth of these regions.

Table 38. FMOLS (Innovation-ISO)

	COEFFICIENT	T-STATISTICS
INVESTMENT	0.09*	1.82
RENT	0.62***	23.79
YI/YUS	-23.6	-1697
ISO	-0.07	-1.45
ISO*V4	0.32***	5.72
ISO*SOUTH CAUCASIA	0.35**	2..35

In both regions, the number of patent applications per million people positively contributes to economic growth. An increase in technological capacity is conducive to growth in these regions.

Table 39. FMOLS (Innovation-Patent)

	COEFFICIENT	T-STATISTICS
INVESTMENT	0.01	0.31
RENT	0.63***	19.42
YI/YUS	-26.07	-1974
PATENT	0.09***	19.42
PATENT*V4	0.19***	3.27
PATENT*SOUTH CAUCASIA	0.38***	2.87

Table 40 shows that R&D spending has a positive effect on GDP growth in these regions. In line with Radosevic and Yoruk's (2014) statement, it can be said that the positive effect of the R&D on growth in these regions occurs through the development of the absorptive capacity of the domestic economy to utilize the imported knowledge and technology rather than introducing the new knowledge and technology at a global level.

Table 40. FMOLS (Innovation R&D)

	COEFFICIENT	T-STATISTICS
INVESTMENT	0.06	1.32
RENT	0.6***	14.77
YI/YUS	-31.38	-3112
R&D	4.12***	96.51
R&D*V4	4.16***	63.73
R&D*SOUTH CAUCASIA	9.73***	76.7

Expansion of tertiary education produces a positive effect on economic growth in V4 countries, while this effect is negative in South Caucasia. The progressive sectors of the V4 economies increase their demand for skilled labor. Fulfillment of the demand of their economies for skilled labor by an increased pool of educated workforce spurs economic growth. However, there is no increased demand for skilled workers from production in South Caucasia as in the V4 economies. As a result, the skills of the increasing pool of the educated workforce are not utilized in the progressive sectors. Some of them find themselves in activities that do not require higher education. Others find employment in the government service, which alone has a limited contribution to economic growth in the absence of the development of the progressive sectors. And a considerable part of the educated workforce, especially in Armenia and Georgia, has to leave their countries. Considering all these factors, the expansion of education does not affect economic growth positively.

Table 41. FMOLS (Education)

	COEFFICIENT	T-STATISTICS
INVESTMENT	0.25***	4.63
RENT	-1.06	-24.02
YI/YUS	-20.06	-1623
EDU	0.16***	7.93

EDU*V4	0.14*	1.8
EDU*SOUTH CAUCASIA	-0.82***	-15.42

3.7. Interactions of the Institutional Development and Structural Change

As the institutional analysis of the source of economic growth gained popularity since the mid-1990s, there emerged an academic tendency to link the underdevelopment of developing countries to the protection of property rights in these countries. It sometimes has been simple-heartedly claimed that strengthening property rights can solve the problem of economic growth in developing countries. However, a line of the skeptical view emerged to such a linear relationship between institutional quality and economic development. It has been argued that none of today`s developed countries relied only on increasing the quality of the institutions while they developed economically. Rather other measures to promote structural change have been decisive in their development (Chang 2002; Reinert 2007). Constantine (2017) investigates the relationship between the economic structure and the inclusiveness of the institutions. He concludes that the structure of the economy can formulate the institutions. The higher value-added increasing return activities can provide an equal distribution of income, which is essential for the inclusiveness of the institutions. Reinert (2006) characterizes institutions as institutions of exchange and production. Institutions of the exchange, such as property rights, the rule of law, and money, are the allocative institutions, and they serve to maximize the exchange among the economic subjects. However, developing countries do not have much to exchange, and the production capacity is a more binding constraint than an imperfect exchange in these countries. Therefore, they need to upgrade the structure of their economies to achieve a higher production capacity. The institutions of production, such as industrial policy, tariffs, and subsidies, are necessary for structural change in developing countries. It might be impossible to achieve structural change by relying only on institutions of exchange.

While investigating the relationship between institutions and structural change in V4 and South Caucasia, it should be considered that both regions achieved upgrading of the value structure of their economies up to different extents before post-socialism. Even though it has been inefficient, their economies have already been industrialized. It is

necessary to evaluate how institutions affected their economic structure as well as how the economic structure formulated the institutions. Economic inefficiency has been a non-ignorable problem in the last decades of socialism. Therefore, institutions of exchange were important for economic growth by preventing the demise of the high-value sectors in the V4. It can also be said that the higher value-added manufacturing sector played a role in the development of the institutions of exchange in the V4 countries in the post-socialist period. The manufacturing sector in the V4 countries inherited a huge inefficiency from the socialist period. This sector could shrink and even collapse if the inefficiency problem was not solved. Therefore, overcoming the inefficiencies to protect this sector from decline had been necessary. By continuously upgrading *property rights, the rule of law,* and macroeconomic stability, V4 countries attracted foreign investors to develop their manufacturing sectors. In this sense, it can be said that the structure of the V4 countries necessitated institutional development. At the same time, institutional development also played a role in preserving and expanding high-value activities. As a part of the FDI-led growth strategy, these countries improved the business environment. In this regard, they attracted foreign capital in the business services sector, and the share of the producer services expanded.

The South Caucasian countries had a smaller and relatively less technology-intensive manufacturing sector at the beginning of the transition, and it was highly dependent on the USSR for inputs, finance, market, and technology. Meanwhile, they lost a significant part of the manufacturing sector mainly due to breaking the links between the USSR. However, it can also be claimed that the existing incentive system also contributed to the decline of manufacturing production. Company managers pursued rent-seeking activities, such as getting subsidies from the government and Central bank, rather than firm restructuring in the form of product, process, and organizational development. Meanwhile, governments in South Caucasia had to cut subsidies to those firms, which resulted in the shutting down of most of them. Within the existing capacity of the South Caucasian countries, it could be possible to encourage labor-incentive manufacturing production, which would not require them to acquire a great deal of the new production capacities. However, the low quality of the property right institutions discouraged investment in such sectors. Political elites monopolized the economic sphere, and they formulated economic

incentives. Making the wholesale trade of imported goods and conducting business in the non-tradable sectors under the umbrella of the government had become more lucrative than risking the new activities.

In short, protecting the existing inefficient manufacturing sector from decline necessitated institutional development to attract global investors. In addition to preservation and increasing the efficiency of the existing manufacturing system via attracting MNCs, institutional development also enabled the development of other higher value-added sectors, including business services in the V4 countries. The virtuous circle of the economic structure and institutional development ruled in the V4 countries. The South Caucasian government could not save the relatively smaller and less complex manufacturing sector from decline either via direct intervention or privatizing them to capable investors in a better institutional environment. They could restore their lost industrial bases within their existing capacity, at least in the labor-intensive manufacturing sectors. But the existing institutional environment encouraged rent-seeking activities in the decreasing return activities, which did not allow for an upgrade of the structure of their economies. In short, the vicious circle of institutions and economic structure persists in South Caucasia.

In general, the vicinity of more developed Europe has a positive effect on institutional development in V4 countries. Geographical closeness and the responsibility of EU membership have been important for the development of economic institutions. At the same time, long historical contact with neighboring Western Europe affected the culture of V4 nations to internalize modern economic institutions easier. However, the lack of intense contacts and integration into societies similar to Europe's level of development worked against the institutional development in South Caucasia.

The pool of an educated workforce is necessary to develop higher value-added, knowledge-intensive activities. It restructured the manufacturing industry and increased the demand for educated workers in V4. At the same time, emerging producer services sectors increased the demand for educated workers with a qualification in the soft fields. As a result, the demand for educated workers increased in the V4 countries. In this relation, the structural change is more decisive than vice versa. The increased demand for skilled labor increased the return to tertiary education; therefore, the families invested in their children's

higher education (Kezdi 2002). The tertiary education also increased in South Caucasia, which an increased return to higher education can explain. Newly emerged business services could be the main source of the increased demand for skilled labor with a qualification in the soft fields. However, the weak business service sectors are not able to employ all graduates, which results in unemployment among university graduates. Part of the university graduates who cannot find employment according to their qualifications end up in jobs that do not require higher education. The migration, especially in Armenia and Georgia, alleviate the unemployment problems of skilled workers. So, the skill premium and increased market of higher education have been the main determinant of the expansion of higher education than increased demand from the skill-intensive sectors. At the same time, the expansion of the pool of the skilled labor force does not attract entrepreneurs to utilize their human capital in modern sectors.

Structural change entails the reallocation of labor from low-value-added activities to higher-value activities, and the flexibility of the labor market regulation is conducive to this reallocation. To assist in restructuring inefficient enterprises, employment regulation was relaxed since the beginning of the transition in the V4 countries. It enabled the restructuring of over-employed enterprises by shedding labor. After the implementation of the restructuring of the privatized SOEs and the influx of foreign capital to the progressive sectors, job growth in these sectors started. In evaluating the labor market regulation on the structural change, it should be remembered that governments in V4 formulated their labor market regulation in the context of attracting mobile foreign capital (Nolke 2009). In this regard, the flexible labor markets contributed to the structural change by attracting foreign capital. South Caucasian countries reduced the strictness of the regulation of employment relations since the early 2000s. The labor regulation has been less strict in South Caucasia than in V4. However, the flexibility of the labor markets did not result in the reallocation of labor to progressive sectors. The flexible labor market alone is not enough to develop higher value-added activities.

The absence of competition in socialist economies was one of the main reasons for their economic inefficiencies (Slay 1996). The socialist economies were highly monopolized around giant companies and were closed to entry and exit. An effective

competition policy was necessary from the beginning of the transition to dismantle the monopolization of the economy and enable other actors to enter. In the background of the EU integration, the V4 countries developed a competition policy. The competitive environment attracted foreign capital, which had been decisive for the modernization of the V4 economies and their integration into global production. Haraguchi, Cheng, and Smeets (2017) show that part of some developing countries could not preserve their manufacturing base and deindustrialized while others filled their places. If V4 countries could not attract the FDIs and modernize their industrial base, they would probably lose a significant part of their manufacturing production. And the competitive environment played an important role in attracting foreign capital. Additionally, ease of entry and exit in the business services sectors contributed to the development and expansion of these activities. In this regard, it can be said that competition policy has a positive effect on the development, preservation, and expansion of the relatively higher value-added activities in the V4 countries.

The South Caucasian countries started to design and develop the competition policy later than the V4 countries and in an incomplete form. At that time, a significant part of their industrial companies ceased to operate until accepting the competition laws. As mentioned previously, these countries had an experience of industrial production and a pool of educated workforce. In addition to the provision of a sufficient level of protection of property rights, reducing barriers to firm entry in the manufacturing sector would enable the utilization of the latent capacity in labor-intensive manufacturing activities according to their comparative advantages. However, they could neither achieve a sufficient level of protection of property rights nor a competitive environment to benefit from this opportunity, which could be another barrier to upgrading their economies' structure.

The V4 countries have been able to preserve and upgrade their industrial base and develop the modern production services sectors by attracting foreign capital. Despite having progressive sectors, they have not experienced a considerable improvement in their innovation capacity. The FDI-dependence economic model and specialization in European industrial production stuck these countries mainly in the medium-skilled tasks within the progressive sectors. Meanwhile, the higher share of the manufacturing and business services in the output and employment did not have a visible effect on the innovation

capacity of the V4 countries. The South Caucasian countries experienced neither an improvement in the innovational capacity, which could spur the upgrading of the structure of their economies, nor had an expansion of the progressive sector, which would increase the demand for innovation. There is a vicious circle of innovation and structural change in South Caucasia.

3.8. Summary

This chapter analyzed the market building and institutional development and their effect on the economic performance in V4 and South Caucasia. The early transition period was accompanied by macroeconomic instability and institutional chaos in South Caucasia, while the V4 countries were able to keep the situation under their control. V4 countries started the market reforms earlier while South Caucasian countries could tame the macroeconomic instability with the assistance of International Financial Institutions and initiated the market reforms afterward. The political sphere was more democratic and less polarized in the V4 countries; therefore, political actors quickly agreed on the necessary market reforms and implemented them. However, the ex-communists centralized the political power in the chaos of the early transition. Therefore, they conducted the market reforms in an incomplete way to benefit their economic interests. In the transition's first decade, there was no strong state to enforce property rights in South Caucasia. However, state capacity has increased since the 2000s, but authoritarian and polarized political systems did not promise and provide the protection of the property rights of all economic subjects. But the V4 countries could develop protection of property rights both due to a more inclusive and less polarized political system and EU integration. As a result, they received an immense amount of foreign capital in the progressive sectors.

Considering the countries' upper-middle- and higher-income status in these regions, the state of the particular institutions is also important for economic growth, besides the property rights institutions. The competition in the product market contributed positively to the economic growth in V4, but this effect is negative due to its incompleteness in South Caucasia. The stricter regulation of the labor markets produces a positive effect on economic growth in both regions. It can be explained that stronger employment protection promotes the accumulation of firm-specific skills, which has a positive effect on

productivity. The innovation system in the V4 region developed mainly via increasing their production capacity. However, there is much to do to increase the technological and knowledge creation capacity. The production capacity also has been the main part of the innovational development in South Caucasia. Still, their gaps with the technological frontiers in the technological and R&D capacity are significantly larger. Tertiary education expanded in both regions, and this expansion has had a positive effect on economic growth in V4 while it is negative in South Caucasia. It can be claimed that the lack of sufficient demand for educated labor is the main reason for the negative association between tertiary education and growth.

A bidirectional relationship exists between structural change and institutional development in the V4 countries. At the beginning of the transition, the state-owned manufacturing industry was big, and they conducted the necessary institutional development to prevent this industry's decline via efficient investors. At the same time, institutional development attracted investment in other higher value-added activities. Institutional underdevelopment hinders the expansion of the progressive activities which is within their current production capacities in South Caucasia. The flexibilization of the labor regulation enabled both to increase the efficiency of the SOES via reducing over-employment and played a role in the decision of the FDIs to invest in V4 countries. Therefore, it supported the development of modern sectors. However, the liberalization of the regulation of labor relations did not produce any positive effect on the structure of the South Caucasian countries. Development in the competition policy enabled the inflows of foreign capital and the reallocation of resources from inefficient firms to efficient ones. Therefore, it promoted the upgrading of the structure of the V4 economies. However, the lack of a competitive environment would hinder the expansion of higher value-added activities. The development of modern, knowledge-intensive activities has become the main factor in the expansion of tertiary education in V4, while the marketization of higher education is the main reason behind it in South Caucasia.

5. Conclusion

5.1. Introduction

Now, the effects of structural change and institutions on economic growth in V4 and South Caucasia have been investigated. This chapter provides a summary of the study, conclusions, and policy recommendations states the limitations of the study, and suggests recommendations for future studies. Section 5.2 summarizes the findings based on the research questions and hypothesis. Section 5.3 covers the conclusion of the study. Section 5.4 discusses the policy recommendations based on the outcome of the study. Finally, section 5.5 presents the study's limitations and future research areas.

5.2. Summary of the findings

This study evaluated the effect of structural change and institutional development on the economic growth in the post-socialist V4 and South Caucasia. The effects of structural change and institutional development on economic growth were analyzed in the third and fourth chapters. This conclusion summarizes the findings of the study along with the stated hypothesis.

Structural change and economic growth

H1: *The reallocation of labor from the low value-added sectors to the higher value-added sectors plays an important role in the productivity growth in V4 and South Caucasia*

Firstly, a descriptive analysis is introduced of the structural change in these regions in the post-socialist period. V4 countries have been successful in preserving their manufacturing industry, and MNCs restructured and increased the efficiency of their manufacturing sector and integrated it into the GVCs. However, the South Caucasian countries experienced an acute deindustrialization and nearly lost their inherited manufacturing production. The business services sector expanded in both regions, but employment in this sector in South Caucasia stands at one-third of the V4 level. The level of agricultural employment in the V4 countries is similar to that of developed countries, except Poland at 10 percent. Contrastingly, South Caucasian countries did not experience a serious decline in agricultural employment and a rise in agricultural productivity, except Armenia. Agricultural productivity is quite low, and this sector still employs one-third of

workers in Azerbaijan and Georgia. However, agricultural employment halved from 44 percent to 22 percent in parallel to a significant growth in its productivity in Armenia.

After giving the description of the change in the structure of the V4 and South Caucasian economies, the effect of the structural change on productivity growth by the CSLS method of the SSA is evaluated. The within-sector productivity growth is the main driver of productivity growth in both regions. Poland and Georgia are distinguished for experiencing the biggest reallocation effect.

The manufacturing sector's contribution to the reallocation effect is insignificant in both regions. Employment in the manufacturing sector matured in the socialist period in V4 economies. Therefore, further expansion was not possible, which has been a cause of the small reallocation effect of this sector. However, the weakness of the reallocation effect of the manufacturing sector in the South Caucasian countries is their inability to expand employment in this sector even from the lower level. Although the reallocation effect of the manufacturing sector is negligible, it has been a driver of the within-sector productivity growth in V4 countries. The FDI-led restructuring played an important role in the rise of productivity in this sector and in upgrading its value structure in these countries. However, unimpressive productivity growth in the small manufacturing sector in South Caucasian countries did not enable this sector to be a locomotive of the within-sector productivity growth.

Expansion of the business services with dynamic productivity growth in Poland played an important role in productivity growth. However, the lack of productivity dynamism in the expanding business services sector reduced its positive effect on productivity growth in Hungary and Slovakia. Armenia is distinguished for the impressive role of the expansion of business services on productivity growth in South Caucasia.

Contraction of the agricultural sector played an important role in the positive reallocation effect in Poland among V4 countries. A slight contraction of the low-value agricultural employment in Azerbaijan and Georgia also produced a large positive reallocation effect.

In short, among the two main examples of the higher value-added sectors-manufacturing and business services, the latter experienced expansion of their share in total employment while there was no visible change in the share of manufacturing employment in both regions. However, the productivity of the business services stagnated in some of the countries in both regions, which reduced its reallocation effect. Lastly, the contraction of low-value agricultural employment has been significant in Poland and South Caucasia while not in other V4 countries. Therefore, the H1 is partially accepted.

H2A: Expansion of the share of manufacturing production has a positive effect on economic growth in these regions.

H2B: Expansion of the share of the business service production have a positive effect on economic growth in these regions.

The result of the econometric test shows that high-tech manufacturing exports positively affect overall economic growth in both regions between 2000 and 2019. However, the effect of the business services sector is positive in V4, but it is negative in the South Caucasian case. The locomotive of the economic growth in South Caucasia has been mainly revenue from the sale of the resource and inflows of remittances. They contributed to the expansion of the demand in the non-tradable sectors, and business services did not benefit from that growth. Therefore, there is not a positive statistical association between business service and economic growth in South Caucasia.

On the institutions and economic growth, property rights institutions

H3: Strengthening the protection of property rights stimulates the economic growth

Before evaluating the effect of the property rights institutions on economic growth in these regions, the establishment of the basic market institutions after the collapse of the socialist system is described. Governments in the V4 countries have seen the deficiency of the socialist system to provide economic growth and the inevitability of adding market elements. They had contact with IMF and World bank and were aware of the necessary reforms. In contrast, South Caucasian countries never had thought about the deficiency of the socialist system and the necessity of adding a market mechanism. In short, the V4

countries were more prepared to tackle the transition shock, while South Caucasian countries did find themselves in a void when the unexpected systematic change happened. Additionally, South Caucasian countries were caught in massive military conflicts at the beginning of the transition; therefore, they did not have the resources and will to devote themselves to establishing a better economic system in the new era. As a result, the V4 countries could handle the transition shock, achieve macroeconomic stability and conduct the necessary market reforms. However, the war, institutional void, and hyperinflation created chaos in South Caucasia, enabling ex-communists to regain political power. The political development since the early transition had a significant effect on the property rights institutions. The societies in the V4 countries envisioned becoming European society in economic, social, and political aspects. At the beginning of the transition, all political power shared a similar vision, and they did not experience political polarization. At the same time, the stick-and-carrot policy of the EU played an important role in the development of the inclusive political system in the V4 countries. As a result, they achieved considerable development in the protection of property rights. Political polarization and monopolization of political power and using it for the economic favor of the political ruler have been the main characteristics of South Caucasia. Despite Georgia achieving an electoral democracy, the marginalization of the opposition, leveraging the economic resources in favor of the political circle, the instrumentalization of the court, and the rule of law remained indispensable features of the electoral democracy of Georgia. The authoritarian regime for a long time in Armenia and still in Azerbaijan did not give up favoritism. In these regards, it cannot be said that South Caucasian countries have considerable achievement in the protection of property rights. After giving the description of market building and development of the property rights institutions in these regions, an econometric evaluation of the effect of the protection of property rights on economic growth has been presented. The result shows that property right institutions have a positive effect on economic growth in both regions. Therefore, the H3 is accepted.

H4A: Competitive product markets have a positive effect on economic growth

Firstly, the development of the competition policy in these regions is described, which were totally under the state monopoly during the socialist period. V4 countries

initiated building the legislative basis of the competitive environment from the beginning of the transition. Their achievement has been remarkable, and the EU integration also played an important role in this achievement. The South Caucasian countries initiated the establishment of the competition policy later at the end of the first decade of the transition, and their reforms in this area are incomplete. The econometric evaluation shows that the competitive environment has a positive effect on economic growth in V4 countries while it is negative in South Caucasia. The competitive environment forced the business entities to reduce the inefficiencies which had been conducive to growth in V4. However, the reforms in the competition policy are incomplete in this South Caucasia. They did not stay the same as in the socialist period but have not achieved a threshold level of the competitive environment. Therefore, it cannot contribute to the economic growth in this region. The H4A is partially accepted.

H4B1: Stricter regulation of employment relations impedes the economic growth

At the beginning of the transition, regulations on employment relations were less strict in the V4. It enabled the enterprises to lay off to reduce the over-employment inherited from the socialist period. The provision of welfare by governments in the V4 countries alleviated the social costs of massive layoffs. Later, they increased employment protection, and EU integration also played a role. In the first decade of the transition, labor regulation was stricter in South Caucasia. But later, they relaxed the regulations of employment relations. Econometric evaluation of the effect of employment regulation on economic growth shows that the strictness of the labor regulation spurs economic growth in these regions. It seems that employment protection supports the accumulation of firm-specific knowledge, and it increases the productivity of the firms. The H4B1 is rejected.

H4B2: Higher rate of informal employment contributes negatively to economic growth

Informal employment is considerably higher in South Caucasia. The effect of informal employment on economic growth is negative in V4, while it is positive in South Caucasia. The large share of informal employment gives additional flexibility for firms to

adjust to the external environment in South Caucasia. Therefore, its effect is positive. The H4B2 is partially accepted.

H4C1: innovation in the form of the improvement in the production capacity plays an important role in economic growth in these regions.

The effect of innovation institutions on economic growth is investigated through three categories of innovation: production capacity, technological capacity, and R&D and knowledge creation capacity. An increase in the number of ISO certificates shows a positive trend in the development of the production capacity in these regions. However, its level in V4 is incomparably higher than in South Caucasia. The FDI-led modernization, higher requirement for production standards, and, lastly, producing more sophisticated products can explain the gap between V4 and South Caucasia. The result of the FMOLS regression shows that an increase in the number of ISO certificates has a positive effect on economic growth in both regions. Therefore, the H4C1 is accepted.

H4C2: Innovation in the form of the enhancement of technological capacity has a positive impact on economic growth.

The decline in the number of patents could seem like a degradation in the technological capacity of these regions. But a couple of factors weaken this statement. The industries in which these regions are specialized have a slow technological dynamism. At the same time, incremental innovation in these industries is hard to patent. The econometric test results show that an increase in the number of patent applications has a positive effect on economic growth in both regions. The H4C2 is accepted.

H4C3: Innovation in the form of development of the R&D capacity contributes positively to economic growth

Excepting Slovakia, V4 countries doubled the share of R&D spending in GDP, and funding from the EU played an important role. The R&D spending stagnated at an extremely lower level in South Caucasia. R&D occurred mainly in the scientific institutions to preserve the scientific capacity and was financed mainly by the government in South Caucasia. The FMOLS regression shows that R&D spending positively and significantly

affects economic growth in both regions. The positive effect of R&D on economic growth occurs mainly through the development of the capacity of the companies to absorb foreign technologies. The H4C3 is accepted.

H4D: Expansion of tertiary education spurs economic growth

Both regions have close to full literacy; at the same time, higher education is more important than secondary education for economic growth at this income level. Therefore, the evolution of tertiary education and its effect on economic growth in these regions is analysed. Tertiary education expanded rapidly in these regions in the post-socialist period, and the marketization of higher education also contributed to its expansion. However, lack of increase in educational staff in higher education, their low salaries, and inadequate level of development of the educational infrastructure pose a threat to the quality of higher education. Econometric evaluation of the effect of tertiary education on economic growth indicates that a rise in the coverage of tertiary education has a positive contribution to economic growth in V4, but it is negative in South Caucasia. There is a demand for skilled labor from the progressive sectors, and the skills of the university graduates are utilized in the productive activities in V4. However, there is an acute underutilization of the skills of the educated workforce due to the smallness of the progressive sectors to employ them. Therefore, tertiary education does not have a positive effect on economic growth in South Caucasia.

H5A: There is a bidirectional relation between institutional development and economic structure.

A deductive analysis has been conducted of the relationship between institutional development and structural change in these regions. At the beginning of the transition, V4 countries had an inefficient but complex industrial system. So, the stake was big, necessitating institutional development to attract capable investors to restructure and save their industrial base from collapse. At the same time, institutional development attracted greenfield investment in the manufacturing industry and business services sector, besides the privatization of the existing manufacturing firms. It resulted in an expansion of the progressive sectors. In South Caucasia, the manufacturing industry was smaller and less

sophisticated and was heavily reliant on (*collapsed*) trade, financial and production linkages in the USSR. The decline of the underdeveloped manufacturing sector did not become a critical issue because the sales of their natural resources at a world price in the new era would provide them with income. Therefore, the development of the property right institutions and business environment was not a priority in South Caucasia. It discouraged long-term investment in progressive sectors. The investment was granted mainly to political power holders and their close circles, and it had a short-term feature and concentrated mainly in the non-tradable sectors. The H5A is accepted.

H5B: The competitive environment has a positive effect on structural change.

The economies of both regions were heavily monopolized during the socialist period, and it created a considerable level of inefficiencies. Reducing the inefficiencies was important to preserve their industrial bases in these countries, and the competitive environment was crucial for the provision of it. The V4 countries improved the legislation of the competition policy, and it attracted a significant amount of the FDIs, which modernized their inefficient manufacturing sector. Otherwise, they would also experience deindustrialization similar to CIS and Latin American countries. The competitive environment has also supported the development of business services activities. The competitive environment has played an important role in preserving and expanding the modern sectors in V4 countries. South Caucasian countries lost a significant part of their industrial bases in the first decade of transition. However, they had a pool of educated workforce and experience in industrial production. By providing a competitive environment in tandem with the development of property rights institutions, they could utilize their latent capacity in labor-intensive manufacturing. However, the absence of a competitive environment had been one of the factors for the non-realization of this opportunity. So, the lack of a competitive environment became a hindering factor in the expansion of the progressive sectors in South Caucasia. The H5B is accepted.

H5C: Flexible labor markets have a positive effect on structural change.

The inherited inefficient companies were over-employed, and the labor regulation should allow companies to find an optimal level of employment. In this regard, the V4

countries relaxed the regulation of employment relations to attract investors. The flexibility of the labor market regulation attracted a huge amount of foreign capital in the modern sectors of V4 countries. Even though South Caucasian countries also liberalized the labor market regulations since the 2000s, it did not contribute to the expansion of the modern sectors. The H5C is partially accepted.

H5D: Expansion of tertiary education has a positive effect on structural change

The modernized manufacturing and developing business services sectors increased their demand for an educated workforce, and the premium for education increased in the V4 countries. As a result, it contributed to the expansion of tertiary education. Tertiary education also expanded in South Caucasia. But there were no expanding progressive sectors to motivate the expansion of tertiary education. At the same time, the increased pool of graduates did not attract enterprises to utilize their skills in the modern sectors. The H5D is rejected.

H5E: Innovation drives the structural change

The progressive sectors expanded in the V4 economies, but it was not driven by the development of their innovation capacity. The FDI-led development has been a main driver of the structural change through preserving the industrial base and developing producer services activities. V4 economies specialized in the lower knowledge-intensive tasks of the modern sectors. Therefore, these sectors did not contribute to the development of their technological capacity. There was neither a development of the innovation capacity to specialize in the knowledge-intensive higher value-added activities nor an upgrading of the structure of the economy to increase the demand for innovation in South Caucasia. Therefore, South Caucasian economies are stuck in a vicious circle. The H5E is rejected.

5.3. Conclusion of the study

This study analyzed the effect of structural change and institutional development on the economic growth in V4 and South Caucasia. Based on the results of this study, this study concludes that progressive sectors like manufacturing and business services are important for economic growth. Improvement in the protection of property rights contributed positively to economic growth in both regions; however, the achievement of the

South Caucasian countries in improving the property rights institutions is still not satisfactory. Increasing the competitive environment has a positive contribution to economic growth in V4, while its incompleteness hinders South Caucasia from benefiting fully. In contrast to expectation, the strictness of employment regulation has a positive association with economic growth. Innovation in the production, technological, and R&D capacity has a positive effect on economic growth. Expansion of higher education has a positive impact on economic growth in V4, while non-utilization of the skills of the graduates in productive activities results in a negative association between tertiary education and growth in South Caucasia.

The existence of the industrial complex spurred the building of the necessary institutional environment to preserve and upgrade it in the V4 countries. At the same time, institutional development motivated investment in the advanced sectors. The opposite occurred in South Caucasia. Improvement in the competitive environment in the V4 countries contributed positively to structural change in V4 by preserving their industrial base and increasing the investment in business services sectors mainly via foreign capital. The underdevelopment of the competitive environment impeded the upgrading of the structure of the South Caucasian economies. The flexibility of the labor market regulation contributed to the structural change in V4 while not in South Caucasia. The change in the innovational capacity did not spur the structural change in these regions. The development of the progressive sectors has a positive effect on the expansion of tertiary education in V4 countries, but its expansion is not driven by structural change in South Caucasia.

5.4. Policy Recommendations

This section gives the following policy recommendations based on the descriptive and empirical findings of this study and intuitive knowledge to assist economic growth in these regions:

1. Current specialization of the manufacturing sectors of the V4 countries in the European production system makes it harder for them to upgrade the value structure of their existing manufacturing production. If V4 countries aim to upgrade the existing manufacturing production, they must compete with the core European countries. Additionally, the main firms in the manufacturing sector are subsidiaries

of the MNC, whose headquarters are in developed European countries. The headquarter companies are decisive in the decision of the subsidiaries in V4. Therefore, it would not be expected that the headquarters allow and assist the subsidiaries to gain specialization in the core activities. Therefore, the new higher value-added activities should not aim to substitute the core activities in developed Europe. Rather, the higher value-added activities complement the core activities should be targeted.

2. In the transition era to Industry 4.0, the world is pregnant with radical technological change. For example, during the transition from Industry 2.0 to Industry 3.0, South Korea and Taiwan were well-prepared to catch this opportunity and joined the developed countries' ranks by introducing new technologies and specializing in the electronics industry, a new field in that time (Lee 2010). The new field of economic activities with new technology would emerge in the Industry 4.0 era, and the V4 countries could gain specialization in these technologies and activities if they are well prepared. Therefore, they should focus on the development of the capacities for new technologies. It is hard to say that South Caucasia also should pursue this strategy because their production and technological preparedness is significantly low to exploit such opportunities.
3. V4 countries escaped deindustrialization while the South Caucasian countries could not. Today, it is not expected that any country with a low level of manufacturing industry, including South Caucasian countries, to achieve over 20 percent employment in manufacturing as V4 countries have now. The higher rate of manufacturing employment in the V4 countries is a case specific to the new EU members. Their integration into the EU production system and EU market in the main industries via MNCs enables a higher rate of manufacturing employment. Otherwise, they would probably experience a lower level of manufacturing employment even if they were successful in preserving their inherited industrial base. Therefore, it would not be expected that South Caucasia would pass the same way and achieve the same manufacturing employment and production level. But it does not mean that they should be satisfied with today`s minimum level of the low-value manufacturing base. They have decades-long experience in industrial

production and a pool of labor. In this regard, they could at least target the labor-intensive manufacturing sectors, which are within their current capacities. Moreover, governments can incentivize domestic and foreign investors with various stimulus packages.

4. The South Caucasian countries have a higher level of low-productivity employment in agriculture. Shifting the excess labor in this sector to the relatively higher value-added sectors in tandem with increasing the productivity in agriculture by increasing its capital and technology intensity could contribute to the productivity of the agricultural sector and overall economy. But it should be kept in mind that there should be relatively higher value-added sectors to absorb excess labor from agriculture. Regarding their lower skill intensity, labor-intensive manufacturing employment could absorb part of them. At the same time, an ongoing expansion of the relatively higher value-added tradable sectors could increase the society's wealth, increasing the demand for non-tradable services such as trade, accommodation, construction, etc. Increased demand in these relatively lower skill-intensive sectors increases the earnings of the workers in these sectors and assists the shift of the workers from low productivity, low-income agriculture to these sectors.
5. The share of employment in the business services in the total employment expanded in V4. The expansion of business service employment in the Czech Republic and Poland has been accompanied by dynamic productivity growth. However, Hungary and Slovakia lacked productivity dynamism in the expanding business services sector. Decline and stagnation of the productivity in the producer services activities do not allow these countries to fully benefit from the positive effect of the expanding business services. Expansion of the lower value-added segments of the producer services and productivity stagnation in the higher value-added producer services can explain the productivity stagnation in the business services in Hungary and Slovakia. Therefore, the expansion of the higher value-added segments of this sector should be targeted. At the same time, barriers to the business activity of the higher value-added firms should be identified and removed.

6. The share of the employment in the producer services in total employment is still smaller in South Caucasia, and the absence of the production sector to have a demand for such services can be considered a main factor behind the underdevelopment of this sector. There emerged an increasing demand for the exports of producer services from Eastern Europe as well as from Armenia and Georgia. However, Azerbaijan still does not add this line of exports to its export profile. South Caucasian countries should target benefitting from the increased demand for exports of business services. Trade of services should be eased, and the education system should provide the skilled labor force with the necessary qualification for these fields.
7. The development of labor-intensive manufacturing and business service exports should not be an end destination of their structural change; rather, it should be the next destination for the South Caucasian countries. In the context of the current technological and human capital capacity, and production experience, it does not seem realistic to target the cutting-edge sectors. These countries should gain production experience and develop their technological capacity; after that, they should target to specialize in cutting-edge sectors. The development of labor-intensive manufacturing and business services could also provide a better life to their societies by giving them an opportunity of finding better employment.
8. Political development and EU integration resulted in a considerable improvement in the protection of property rights in V4 countries, enabling these countries to attract a huge amount of investment in the progressive sectors. The recent attempts by the Polish and Hungarian governments to violate the rule of law would be a discouraging factor in the investment environment. Compliance with the protection of property rights should be kept to preserve the achieved economic development and add more to it in this region. However, the political environment in South Caucasia did not support the protection of property rights. The rule of the ruler is still more powerful than the rule of law in this region. The political elite can easily leverage their political power to channel economic opportunities and public resources in favor of their own circle. Rent-seeking is the dominant behavior among the economic elite. Reducing the incentives for rent-seeking behavior and

improvement in the rule of law and protection of property rights is necessary for the economic development of this region. Otherwise, the ruling elite and their clients would block economic reforms or make reforms meaningless if they were still favored at the cost of the other economic actors. There are still huge formal and informal barriers to establishing a competitive environment in South Caucasia. They should be avoided, and a competitive environment should be provided. It would enable more efficient companies to lead economic growth. Otherwise, inefficient firms with political affinities would waste public resources.

9. One of the barriers to the innovation system in the V4 countries is its demand-driven characteristics. They mainly sophisticated already existing knowledge and technology rather than creating new knowledge and technology. For example, it has not been witnessed that any country in the V4 region introduced a new technology similar to what Taiwan and South Korea did when they transformed into a developed economy. So, changing the innovation system from a demand-driven to a supply-driven system is necessary for their further economic growth and to join the club of developed countries. Transformation to the supply-driven innovation system requires the development of the firm-level innovation capacity and the national innovation system. Various stimuli should be given to firms in the progressive sectors to develop the firm-level innovation capacity. At the national level, the resources for R&D should be increased, and the connection between industry, university, and government be strengthened. Another threat to the innovation system in the V4 countries is its external dependency. The FDIs played an important role in R&D activities for a long time. In the last decade, EU funds replaced that dependence. To reduce the dependence on external funds, domestic public spending on R&D should be increased, and private R&D be promoted.
10. The share of knowledge-intensive production has been crucially low in South Caucasia. Therefore, there has not been a demand for innovation in these economies, and their innovation system is rudimentary. At this level of the innovation system, they should focus on mastering the existing knowledge and technology and their sophistication. Attempting to introduce new knowledge and technology does not seem an attainable goal for South Caucasian countries. The

development of the innovation system would go hand in hand with upgrading production. In the background of the promotion of higher value-added activities, innovation in such activities should also be stimulated. At the same time, the national innovation system should be upgraded to meet the demand of the potential higher value-added sectors for innovation. The helix of the university, government, and industry should be developed.

11. Further economic development requires the V4 economies to move to more knowledge-intensive production. The expansion of higher education and development in its quality, is necessary for the knowledge economy. Therefore, education policy should target both the expansion of higher education and its quality improvement. Furthermore, the South Caucasian countries should target the development of higher value-added activities, which would increase the demand for skilled labor. Therefore, both coverage and quality of higher education in the fields which prepare a skilled workforce for progressive sectors should be increased.

5.5. Limitations of the Study and Recommendation for future studies

This study contributes to the literature by presenting new findings. However, it has some limitations which should be mentioned. Firstly, the beginning of the data for the analysis of the effect of the sectoral reallocation on economic growth is 1995 for V4 and 1998 for South Caucasia. This limits the study because a significant change happened in the sectoral distribution of output and employment in the first half of the 1990s, but this study cannot analyze their effect due to the absence of data for that period. Secondly, there is a considerable level of informal economy in South Caucasia. Therefore, the data on the sectoral distribution of output and employment would not fully describe the real situation in these countries. Lastly, the small sample size is the main limitation of the econometric analysis.

One of the directions of future research should be the evaluation of the activities in the manufacturing and business services sector in V4 countries, which have the potential to introduce new technology, products, and knowledge at the global level and upgrade their economies. This is because these economies are at the level of development which requires introducing new knowledge, products, or technology to the global economy to join the rank

of the developed economies. Now, V4 countries are specialized in the activities in which there are a lot of competitor countries. Therefore, if they can introduce and master new technology and knowledge, they would face less competition and have a technology rent in these new activities.

Analysis of rent-seeking behavior and its effect on economic growth in South Caucasian countries could be another interesting area of future research. Access to political power can allow powerholders to use public resources for their economic interest. Therefore, it creates a rent-seeking in the economic activity. Economic actors earn money by getting subsidies or monopolies rather than adding value to society through the increased efficiency of the existing economic activities or introducing new activities. Rent-seeking behavior produces distorted incentives, which can create an undesired economic outcome.

Future studies should also consider investigating the potential high-value-added activities through which South Caucasian countries could integrate into the GVC. As small economies, they cannot establish a whole industry from scratch; now, it would be better for them to start from tasks within sectors.

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