

STRUCTURAL CHANGE AND ECONOMIC GROWTH IN UKRAINE

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DOI: <https://doi.org/10.36004/nier.es.2021.2-05>

JEL: C2, C5, F6, J24, L5, L6, O,; O3, O4

UDC: 338.1(477)

ABSTRACT

Deep structural shifts have been the leading feature of the modern world. The study considers the parameters and causes of structural change in the Ukrainian economy, as well as the relationship between structural change on the one hand, and labor productivity and economic growth on the other. The study shows that the accelerated reduction of the industrial sector, its technological simplification and narrowing the variety of industries were the key features of the structural changes model that occurred in Ukraine's economy after the global financial crisis. This was accompanied by increased dominance of the tertiary sector and the growth of the primary sector. Such a trend of structural shifts is not able to generate the necessary boost of economic growth.

Comparison of parameters and trends of structural changes in Ukraine's economy and in a comparable group of countries and the world as a whole show that the changes in the structure of Ukraine's economy were more intensive, but did not create sufficient potential for sustainable economic growth. The author analyzes the gaps in labor productivity between economic activities and sectors of Ukraine's economy, as well as changes in their dynamics, which leads to the conclusions about the relationship between the rates of technological development of different sectors of Ukraine's economy and the gradual slowdown of the already imperfect technological development of this country's industry. Using the apparatus of econometric modeling, the author evaluates the dependence of the dynamics of GDP growth on the change of the indices of GVA in the sectors of this country's economy.

Keywords: *structural changes, index of structural changes, labor productivity, economic growth, industrial sector, technological development.*

Schimbările structurale profunde au devenit principala caracteristică a economiei mondiale moderne. Acest studiu examinează parametrii și cauzele schimbărilor structurale în economia Ucrainei, precum și relația dintre schimbările structurale, productivitatea muncii și creșterea economică. Studiul a arătat că trăsăturile cheie ale modelului de schimbări structurale care au avut loc în economia Ucrainei, după criza financiară globală, țin de reducerea accelerată a ponderii sectorului industrial, simplificarea tehnologică a acestuia și restrângerea varietății de tipuri de producție. Aceasta a fost însoțită de o creștere a dominației sectorului terțiar și de creștere a sectorului primar. O astfel de traiectorie a schimbărilor structurale nu poate să genereze o accelerare necesară a creșterii economice.

Compararea parametrilor și tendințelor schimbărilor structurale în economia Ucrainei cu un grup comparabil de țări și cu întreaga lume a arătat că schimbările în structura economiei naționale au fost mai intense, dar nu au condus la crearea unui potențial de creștere economică durabilă. Au fost analizate decalajele în productivitatea muncii între tipurile de activitate economică și sectoare ale economiei, precum și schimbările în dinamica ale acestora, ceea ce a dat temei pentru concluzii despre raportul dintre ritmul de dezvoltare tehnologică a sectoarelor economiei și încetinirea treptată în dezvoltarea

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tehnologică a industriei naționale. Cu ajutorul aparatului de modelare econometrică se estimează parametrii dependenței dinamicii creșterii PIB de modificările indicilor VAB ai sectoarelor economiei.

Cuvinte cheie: schimbări structurale, indicele schimbărilor structurale, productivitatea muncii, creștere economică, sector industrial, dezvoltare tehnologică.

Основным признаком современной мировой экономики стали глубокие структурные сдвиги. В данном исследовании рассматриваются параметры и причины структурных изменений в экономике Украины, а также связь структурных изменений с производительностью труда и экономическим ростом. Проведенное исследование показало, что ключевые особенности модели структурных изменений, происходивших в экономике Украины после мирового финансового кризиса, заключались в ускоренном уменьшении веса индустриального сектора, его технологическом упрощении и сужении многообразия видов производств. Указанное сопровождалось усилением доминирования третичного сектора и ростом первичного. Такая траектория структурных сдвигов не способна генерировать необходимое ускорение экономического роста.

Сравнение параметров и тенденций структурных сдвигов в экономике Украины и в сопоставимой группе стран и мире в целом показало, что изменения в структуре национальной экономики были более интенсивными, однако не привели к созданию достаточного потенциала для устойчивого экономического роста. Проанализированы разрывы в производительности труда между видами экономической деятельности и секторами экономики, а также их изменения в динамике, что дало основания для выводов о соотношении темпов технологического развития секторов экономики и о постепенном замедлении технологического развития национальной индустрии. С использованием аппарата эконометрического моделирования оценены параметры зависимости динамики роста ВВП от изменения индексов ВДС секторов экономики.

Ключевые слова: структурные сдвиги, индекс структурных изменений, производительность труда, экономический рост, индустриальный сектор, технологическое развитие.

INTRODUCTION

Structural shifts due to advances in production technologies and services are the main factor in economic growth and a sign of development in a modern economy (Kuznets, 1973). According to the three-sector model of economy, the principal direction of structural transformation is the transition from primary production (agriculture and mining) to processing industries and then to the provision of services (or the tertiary sector). The absorption of capital and technologies, which ensures the achievement of high productivity, thus creating a basis for the flourishing of the post-industrial service economy is of great importance for the development of the manufacturing, starting from the stage of industrialization. The impulses of structural change are transmitted via the channels of increasing productivity and redistributing factors of production in favor of sectors with higher efficiency to attain sustainable economic growth.

The decade after the global financial crisis was marked by structural trends opposite to those prevailing in previous period. The role of manufacturing in the world economy strengthened and it returned to leading positions. In particular, the contribution of the manufacturing to the generation of global GDP increased by 1.3% during 2009-2018 to reach 15.4% (2018), including in developing countries - by 1.1%, and in the industrialized countries - by 0.7% (UNIDO 2019). The radical transformations in the world's industrial landscape caused by the development of technologies of the "fourth industrial revolution" led to the emergence of new types of production, which gave additional impetus to structural changes in the global economy and exacerbated competition in the markets. Against this background, for Ukraine, with its inefficient economic structure and insufficiently modernized production technologies, the risks of further sliding down to the margins of global

development and weakening of its geopolitical positions are increasing. Therefore the problem of structural reforms primarily based on industry and achievement of sustainable growth of the national economy becomes of particular importance.

STRUCTURAL CHANGE AND ECONOMIC GROWTH: A LITERATURE REVIEW

Structural shifts and assessments of their impact on the economic growth of individual countries and the world have long been a subject of scientific research (Saccone & Valli, 2009). These topics have never lost their relevance, given the dependence of each country's geopolitical position on the production structure of its economy (IDR2020, 2019). The researchers' attention is attracted by the trends in structural changes (Diao et al., 2017), and identification of their levers and determinants (labor, capital, innovative technologies, savings, national and foreign investment, and foreign trade) (Bekkers et al., 2021).

In the Ukrainian academic community, there is an intense debate about the challenges facing this country's economy in the context of structural shifts in the world economy. The external factors of the obvious process of structural simplification of Ukraine's economy and its approach to the structural characteristics of the less developed economies are revealed, which are due to the peripheral status of this country's economy in global production chains (Сіденко, 2017). Analysis of the key features of Ukraine's economy, which is classified as small, open and raw material based in terms of the structure of production and exports (Кораблін, 2017), revealed a weakening of macroeconomic dynamics, and the threat of further technological lag behind more innovative and dynamic economies. Study of the domestic causes of the distortion of the structure of Ukraine's economy showed their institutional dependence on property relations, which appeared against the background of non-transparent campaigns for the privatization of state property, the emergence of super-profitable private monopolies and establishment of the power of oligarchs (Kindzerski, 2021). The specific features of the business financing models are revealed, which are based on the use of shadow reserves and "offshorization" of financial relations, which create considerable financial constraints to restructuring the economy (Зимовець et al., 2019).

Consideration of a wide range of issues of inclusive development made it possible to substantiate the need for transition to a model of economic growth, in which a human, with the level and quality of his life is the center of concentration of efforts intended to implement structural changes (Бобух et al., 2020). In the context of the search of tools for effective economic policy, the advisability of "smart specialization", which is based on a combination of scientific and technological, innovational, regional and industrial policies and is intended to promote structural modernization of the economy is proven (Єропов et al., 2020). The study of regional proportions and the hierarchy of regions in the national economy showed the priority of the development of manufacturing to ensure the well-being of regional population, and proved that the further decentralization of state powers, development of a new industrial sector based on Industry 4.0 technologies is the key to strengthening regional economic viability and overcoming structural and territorial disparities. (Shovkun, 2019a). The expediency is substantiated of implementing a development strategy based on the expansion of domestic market, and on its ability to meet the consumers' needs and to correct imbalances in foreign trade (Ostaško, 2019) (Shovkun, 2020).

This study involves assessing the parameters of structural changes that took place in Ukraine during the 2000s, identifying the efficiency of structural changes in terms of labor productivity and dynamics of economic growth, and determining approaches to the development of structural policy.

Methods for measuring structural shifts

Structural shifts are estimated using several indicators. Most often, the structural change index is used (Diao et al., 2017), which estimates the degree of shifts in the sectoral composition of the economy that occurred over a certain period.

$$ISC_{VA} = \frac{1}{2} \sum_{i=1}^n |VA_{it} - VA_{i(t-1)}| \quad (1)$$

where ISC_{VA} - index of structural changes in terms of value added;

n - number of economic sectors (economic activities, industries);

VA_{it} and $VA_{i(t-1)}$ - share of value added of sector i in the current period t and in previous period $(t-1)$.

The other indicator, the coefficient of structural changes, measures the changes in the composition of employment by economics sectors:

$$ISC_L = \frac{1}{2} \sum_{i=1}^n |L_{it} - L_{i(t-1)}|, \quad (2)$$

where ISC_L - index of structural changes by the number of employed;

and L_{it} and $L_{i(t-1)}$ - the share of employed in economic sector (economic activity, industry) i in the current period t and in previous period $(t-1)$, respectively.

Both variants of the index are used to measure the intensity of spatial structural changes - in individual countries, and in economic regions, which ensures the comparability of estimates.

To identify the qualitative effect of structural shifts, a complex indicator is used – *the index of productivity gains* ($I_{\Delta P}$), which is calculated by the shift-share method:

$$I_{\Delta P} = \sum_{i=1}^n \frac{L_{i(t-1)} \Delta P_i}{P_{(t-1)}} + \sum_{i=1}^n \frac{P_{i(t-1)} \Delta L_i}{P_{(t-1)}} + \sum_{i=1}^n \frac{\Delta L_i \Delta P_i}{P_{(t-1)}}, \quad (3)$$

where, in addition to the already mentioned indicators, there is $P_{(t-1)}$ - labor productivity (that is, value added in constant prices per one employed) in the base period;

ΔP_i - the increase in labor productivity in sector i in the current period (t) compared to the base period $(t-1)$;

ΔL_i - the increase in the share of employed in economic sector i in the current period compared to previous (base) period.

Transformation of the structure and dynamics of Ukraine's economy

According to UN data on industrial development, Ukraine's economy belongs to the category of emerging industrial economies, closely integrated into global trade and production chains (IDR2020, 2019). Such integration potentially promotes the transfer of new production technologies, and intensifies industrial development and economic growth. However, in the global system of production linkages, Ukraine has a predominantly raw material specialization, which causes this country's excessive dependence on price fluctuations in the global markets and economic instability. Ukraine's GDP growth during 2000-2019 with short periods of ups was dominated by waves of crises and deep falls (Figure 1), which were caused by external influences (the global financial and economic crisis of 2008-2009, and by the loss of part of this country's economic potential as a result of Russian aggression and occupation of territories of industrially intensive regions since 2014).

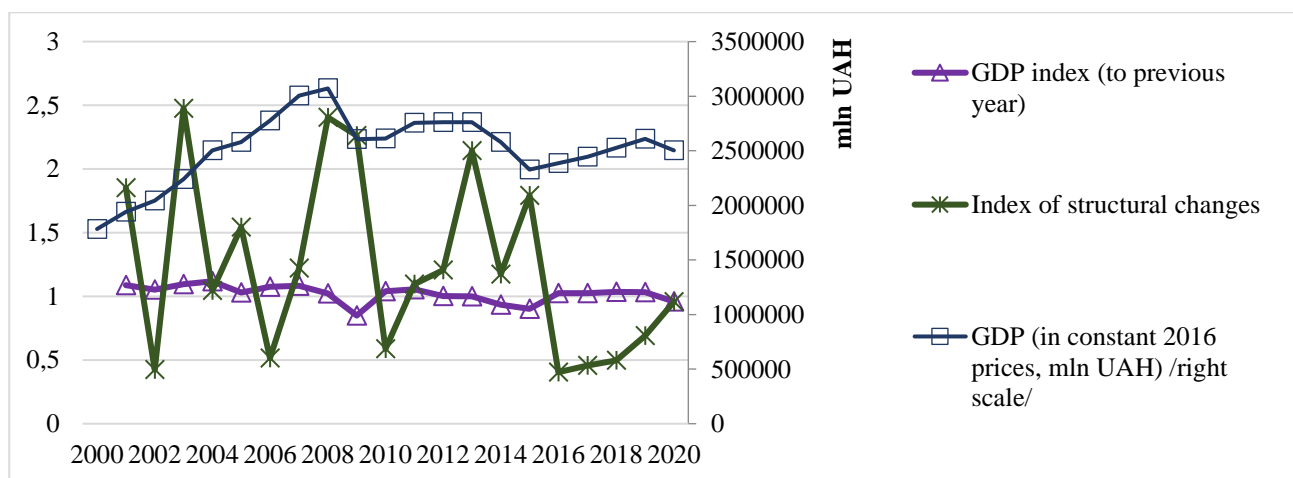


Figure 1. GDP dynamics and structural changes in Ukraine's economy in 2000-2020.

Source: calculated according to data of the State Statistics Service of Ukraine. <http://www.ukrstat.gov.ua/>

At the same time, the structural changes that took place in Ukraine's economy exceeded in intensity the world level and the level of the comparable group of Central European and Baltic countries (similar to Ukraine by development level) (Figure 2). In particular, the average level of the index of structural changes (estimated in terms of value added) in Ukraine reached 2.1 in 2000-2019, while in the comparable group of countries it registered 0.6, and globally - 0.5.

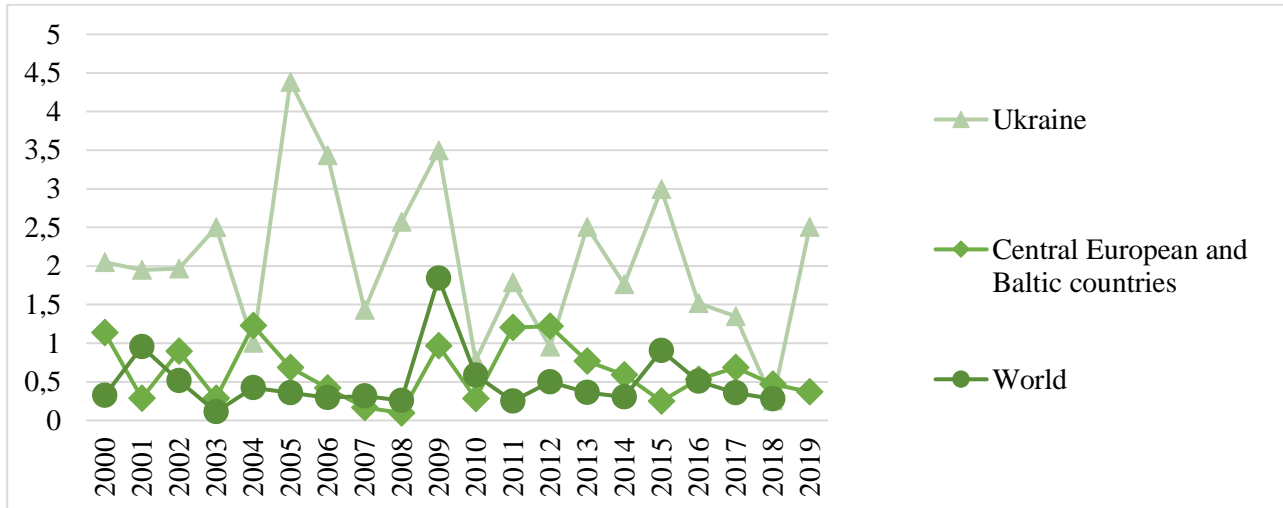


Figure 2. Index of structural changes (value added) globally and in Ukraine in 2000-2019.

Source: World Development Indicators. <https://databank.worldbank.org>

Usually, intensive structural change is associated with greater opportunities for economic growth arising due to increased aggregate productivity and income (Mijiyawa & Conde, 2020). This is confirmed by the examples of Asian countries (China, India, etc.), where structural changes contributed to economic growth (Bekkers et al., 2021). However, structural shifts in Ukraine appeared destructive for the economy, because they were accompanied by the loss of a significant part of *the manufacturing potential*, a considerable GDP decline and sluggish economic dynamics.

The share of service sector is constantly growing. This tendency in the Ukrainian economy appeared a long time ago and did not change during 2000-2019 (Figure 3). The development of service sector in Ukraine corresponds to global trends, but the development of the industrial and agricultural sectors is different. The short period of industry based economic recovery and growth (2000-2007) was interrupted by the strikes of crises that caused significant damage to this country's industrial potential. Distinctive features of the structural changes in Ukraine's economy after 2007 were, on the one hand, a significant decrease in the share of the industrial sector (primarily the manufacturing), and on the other, a rapid increase in the share of the tertiary and primary sectors (Figure 3). In particular, the reduction in the share of the industrial sector in Ukraine's GDP reached 22.5% (at the end of the analyzed period), which is less than the world level (25.6%) and less than that of the comparable group of Central European and Baltic countries (27.6%). At the same time, the share of the manufacturing in Ukraine reduced to 10.8% of GDP, while globally it is 15.4%, and in the comparable group it is 17.6%.

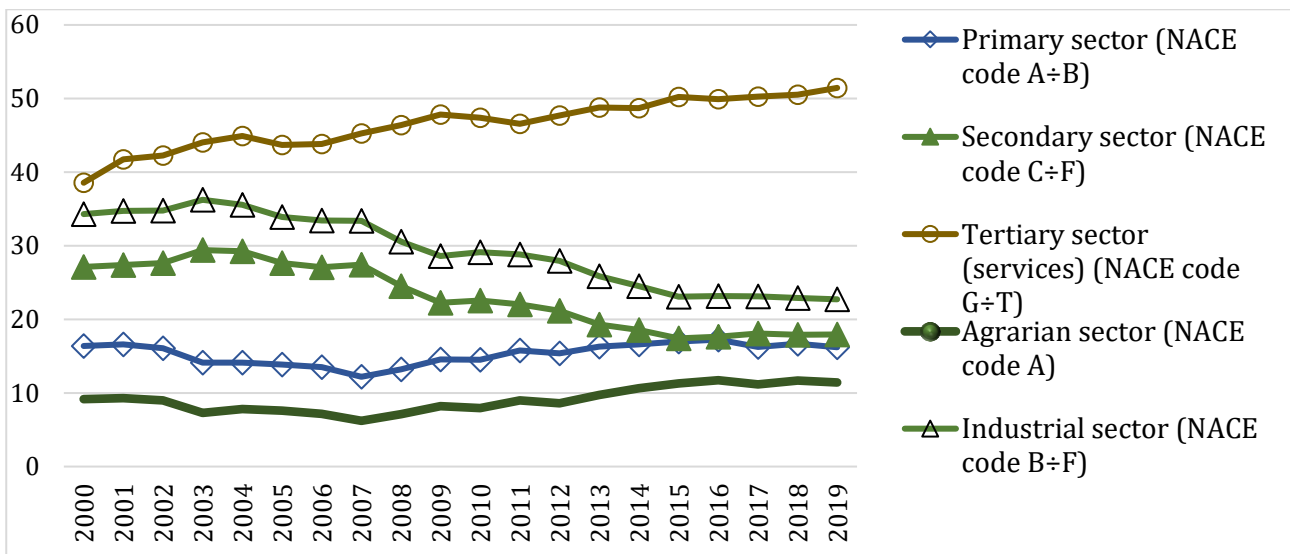


Figure 3. Sectoral composition of gross value added in Ukraine in 2000-2019 (at constant 2016 prices), %.

Source: State Statistics Service of Ukraine. <http://www.ukrstat.gov.ua>

However, by the share of agricultural sector (9% of GDP in 2019), Ukraine is almost three-fold ahead of global average, and even more so relative the comparable group of countries. The advantages associated with developed agriculture and the ability to build long chains of domestic production are underutilized and are even lost for economic growth leading to the situation when it is raw materials that are exported to world markets, rather than processed products. Moving from the agrarian economic pattern to the industry and service based one provides countries with economic progress in the form of rapid growth in real GDP and overcoming poverty, while movement in the opposite direction will not produce such results. In general, the reproduction mode of the primary sector (mining and related primary processing industries, and agriculture) is only capable of generating relatively low rates of economic growth.

Efficiency of Structural Change: Labor Productivity and Economic Growth

Efficient structural change is a determining condition for economic development. Estimations of efficiency carried out using labor productivity indicators show contradictory processes in the Ukrainian economy. On the one hand, there are long-term trends towards increased productivity in all sectors, which indicates their modernization. But on the other hand, the dynamics of productivity growth is slowing down, which is associated with the negative impact of shifts in employment structure on the overall productivity.

There are significant disparities in labor productivity across economic sectors. Calculations suggest that industry retains the leading position in labor productivity (hereinafter we refer to the indicator of the volume of gross value added in constant 2016 prices per one employed by economic activity) surpassing the service sector, and furthermore the agricultural sector (Figure 4). However, the gap between the sectors is constantly decreasing.

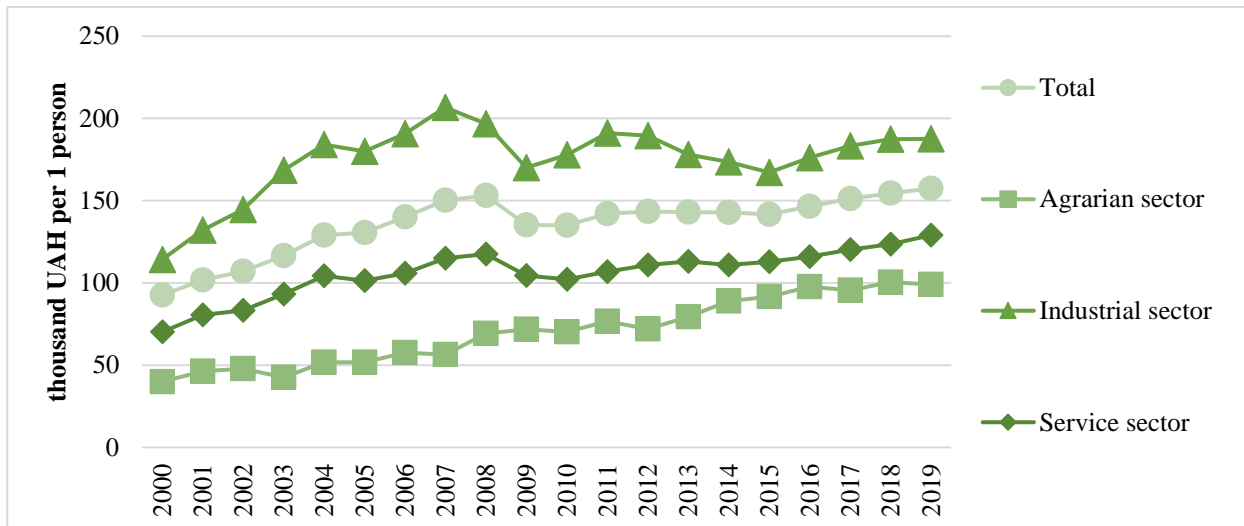


Figure 4. Labor productivity in terms of gross value added by sectors of Ukraine's economy in 2000-2019.

Source: calculated according to data of the State Statistics Service of Ukraine. <http://www.ukrstat.gov.ua/>

Analysis of the growth dynamics in productivity for 2000-2019 indicates the positions of the above mentioned sectors are diametrically opposite. Productivity in the agricultural sector grew almost continuously, so the final value reached the highest level of 2.5. Productivity indexes in the services and industrial sectors only were 1.8 and 1.6, respectively, although the two sectors had better starting positions in 2000-2007. The lag of these two sectors is caused by a fall in their productivity during the crisis in 2008-2009, and in the industrial sector also during 2012-2015 (which was due to the severance of trading ties with the main at that time and traditional for Ukrainian exporters sales markets in the CIS countries).

Detailed data about employment and productivity by economic activity (Table 1) show a high concentration of workers in industries with low productivity. In particular, Ukraine's main employers are trade and agriculture (where more than 41% of employed are concentrated), whose productivity levels are among the lowest of all economic activities. While by the number of employed, trade ranks first, in terms of productivity this sector ranks 11th, and agriculture - 2nd and 10th, respectively. These low-productivity sectors are characterized by relative stability in employment even during crises and by the ability to absorb free labor.

Intelligently intensive commercial services and services using new technologies are characterized by high productivity. Activities in these categories surpass the average level of productivity in the economy by 3.0 - 3.5 times (2019), and some of them - by more than 4.2 times (realty, financial and insurance, information and telecommunications). These activities together provide jobs for 13.4% (2019) of total employed in the economy. The number of employees in the sectors with highest productivity decreased over the observation period, for example, because of the systemic banking crisis in Ukraine, which was accompanied by the liquidation of dozens of banks in 2014-2016. The limit of the ability to absorb labor in the whole group of high-productivity services so far never exceeded 15.5%. Other activities in the service sector (including trade) are lagging far behind by productivity, but it is in them where most employees (50%) are concentrated, which determines the sector's total productivity.

Table 1

Labor productivity (LP) and employment by economic activity in Ukraine in 2012-2019

Activity	LP, thousand UAH per 1 person	LP ranking	LP index	Share of employed, %	Employed number ranking	Employed number index
	2019	2019	2019 to 2012	2019	2019	2019 to 2012
Total	157.4		1.10	100.0		0.86
Agriculture, forestry and fishing	99.0	10	1.38	18.2	2	0.91
Industry	208.3	4	0.96	14.8	3	0.76
Construction	114.6	8	1.35	4.2	8	0.84
Wholesale and retail trade; repair of motor vehicles and motorcycles	93.0	11	0.92	22.9	1	0.91
Transportation and storage	171.8	6	1.15	6.0	5	0.87
Accommodation and food service activities	62.7	14	1.27	1.8	12	0.93
Information and communication	380.3	3	1.35	1.7	13	0.97
Financial and insurance activities	427.7	2	1.56	1.3	15	0.67
Real estate activities	665.9	1	1.63	1.6	14	0.81
Professional, scientific and technical activities	188.3	5	1.30	2.5	9	0.84
Administrative and support service activities	104.3	9	1.22	1.9	11	0.92
Public administration and defence, compulsory social security	144.2	7	1.32	5.3	7	0.87
Education	65.6	13	1.10	8.4	4	0.85
Human health and social work activities	60.5	15	1.07	5.9	6	0.82
Arts, entertainment and recreation	73.7	12	1.12	1.2	16	0.88
Other types of economic activity	58.5	16	1.44	2.2	10	0.90

Source: calculated according to data of the State Statistics Service of Ukraine. <http://www.ukrstat.gov.ua/>

The next in terms of productivity is industry, which occupies the 4th place by this indicator and exceeds the average level by 1.3 times. Industry remains a major employer providing jobs for 14.8% of the employed population, but is rapidly reducing its jobs number (-24% during 2012-2019). People who lost their jobs in industry mainly move to low-productivity industries because transition to high-productivity sectors is constrained for them by a lack of corresponding vocational training. Therefore, there is a need to promote education, in particular, by encouraging people of all ages to study and renew their professional skills.

Analytical calculations (Figure 4, Table 1) illustrate the fact that the productivity in the industrial sector itself serves not only the main source of total productivity, but also an engine of

economic dynamics. Therefore, changes in the structure of employment associated with the flow of workers from industry to low-productivity sectors, as well as the conversion of labor flow into a driving force of structural transformation, slow down the overall potential for increasing productivity and growth of the national economy.

The sources of increasing productivity in economic sectors include, firstly, capital accumulation, technological changes, and rational use of economic resources; second, the movement of workers from low to high-productivity activities. The influence of sources of both categories on the change in labor productivity is defined by the shift-share method. Calculations reveal a significant difference between them both in the impact strength and in impact direction (Figure 5).

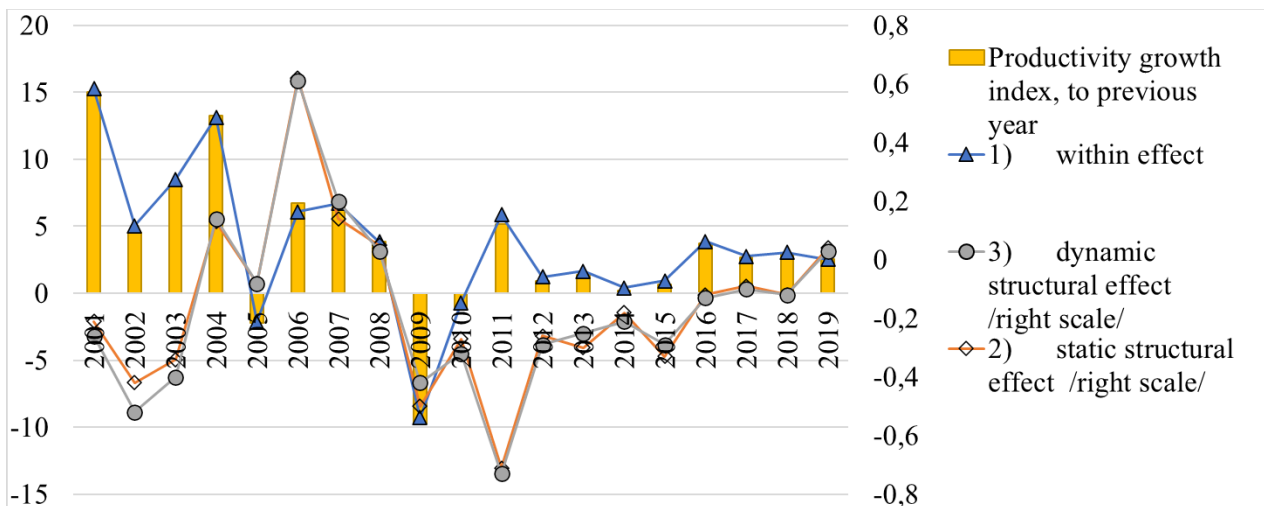


Figure 5. Structural components of labor productivity growth index in Ukraine' economy in 2000-2019

Source: calculated according to data of the State Statistics Service of Ukraine. <http://www.ukrstat.gov.ua/>

The influence of internal sources on the productivity dynamics (within effect), being the former's effectiveness based on investment, technological innovation, and careful use of resources, is dominant and mostly positive. The internal resources determine about 90% of productivity change in the economy. Thanks to them, according to calculations, the labor productivity index almost doubled during the observation period. However, the lack of capital accumulation by industrial enterprises, passivity in the introduction of new technologies, and irrational expenses made their impact, leading to negative productivity dynamics in 2005, and in 2009-2010 and slowed down its growth in subsequent periods. No wonder the unfavorable investment climate, low investment activity of business, and the investors' disappointment in the possibility to receive loans on acceptable terms are recognized as the main obstacles to accelerating economic growth in Ukraine (Shovkun, 2019b) (Zymovets et al., 2021).

The contribution of the static structural effect, as well as that of dynamic structural effect, to changes in the productivity dynamics is relatively small and mostly negative. Statistical assessments of both these effects confirm that shifts in employment proportions between sectors negatively affected productivity growth rates between 2000 and 2019. (Figure 5). Temporary positive effects took place during periods of accelerated productivity growth in all sectors, especially in the industrial sector (in 2004, 2006-2008), as well as against the background of a shift in the employment proportions in favor of real production (2019).

The structural factors are closely integrated into the process of economic growth. A multiple regression model was built (I) to test the influence of structural factors on economic dynamics. Selection of the model's factorial features was preceded by analysis of the correlation between the explanatory (exogenous) variables and testing for multicollinearity. Considering the existence of a

linear relationship between the dynamics of growth in the service sector and that in the industrial sector, two exogenous variables were selected for the model.

$$\text{GDP_gr} = 0,135 + 0,167 \text{ Agr_gdp_gr} + 0,713 \text{ Ind_gdp_gr} \quad (\text{I})$$

Prob. t-Statistic (0,0358) (0,0009) (0,0000)

$R^2 = 0,95$; DW = 1,577; Prob (F-statistic) = 0,0000;

where GDP_gr - GDP physical volume index (in prices of previous year);

Agr_GDP_gr - index of physical volume of gross value added in the agricultural sector (in prices of previous year);

Ind_GDP_gr - index of physical volume of gross value added of the industrial sector (in prices of previous year).

The multiple coefficient of determination (0.95) demonstrates a significant tightness of the joint influence of independent variables on the dependent variable. The regression equation is quite reliable, which is confirmed by the statistical significance of the regression coefficients, F-statistics. Investigation of the model's random deviations (using the Durbin-Watson statistics, Breusch-Godfrey test, White, Glazer and Breusch-Pagan tests) indicates the absence of autocorrelation of residuals (1st and 2nd orders) and homoscedasticity of the variance of residuals, which confirms reliability of the regression's estimates.

The results of econometric simulation show that in 2003-2020, the growth of GDP physical volume was determined by the corresponding dynamics of the industrial and agricultural sectors. The equation's coefficients measure the quantitative influence of each factor on the dependent variable, and therefore it can be stated that GDP index increases by an average of 0.167 points due to the increase in GVA index of the agricultural sector by 1 point per year (other exogenous factors being unchanged), but by 0.713 points - due to increase in GVA index of the industrial sector (under similar conditions). Thus, the second factor has a greater effect on the result than the first one. Therefore, the parameters of regression simulation confirm the influence and significance of the structural factors for economic dynamics.

CONCLUSIONS

The study shows that Ukraine's economy has experienced significant structural shifts over the past two decades. The intensity of these shifts exceeded not only the global average, but also the level of a comparable group of Central European and Baltic countries. However, the change in the direction of structural transformations, whose turning point was the global financial crisis of 2008-2009, determined the fact those transformations did not yield a sufficient potential for sustainable economic growth. While at the initial stage (2000-2007) the rise in the tertiary sector's share in GDP was combined with the strengthening of the secondary sector, which together created proper conditions for a dynamic increase in productivity and provided high rates of economic growth, then at the final stage the configuration of forces changed. A decrease in the share of the secondary sector (especially the loss of part of the potential in the manufacturing, the latter's technological simplification and narrowed product assortment), together with the strengthening of the primary sector, and waves of economic crises and Russian aggression, led to a temporary drop in productivity, followed by a slowdown of its growth rates and a deceleration of economic recovery. This pattern of structural changes is burdened by the risks of deeper structural inconsistency of Ukraine's economy with the cardinal changes taking place in the world economy, generated by the progress of Industry 4.0 technologies and by production diversification.

The considerable productivity gap between economic activities is only deepening. The contrast is especially sharp within the tertiary sector between high-tech services and the rest of services, where the gap is more than 11 times. This although the differences between sectors' labor productivity remain, as well as the distances between them are reducing. Certainly, productivity gaps between individual economic activities and sectors reflect the degree of differences in their technological development, which depends on the pace of introduction of new production technologies, the rate of capital investment inflow, and the quality of labor force. On that basis, we note that technological

development is proceeding more rapidly in the agricultural and service sectors than in the industrial sector, which indicates a gradual slowdown of the already imperfect technological development of Ukraine's industry threatening with a subsequent loss of its competitiveness.

Under such conditions, it is quite predictable that technological backwardness of this country's industry causes a slowdown in economic growth. The study substantiates that GDP index rises by an average of 0.71 percentage points as the industrial sector's GVA index grows by 1 point per year (other exogenous factors being unchanged). Therefore, industrial development is an influential and significant prerequisite of economic growth, and no other sector has such a driving force.

The estimates made based of calculating the disaggregated components of labor productivity index revealed that the dominant positive role in productivity growth is played by internal sources based on capital investments, introduction of technological innovations, and prudent use of resources. Thanks to their action, labor productivity in Ukraine's economy almost doubled during 2000-2019. The other source - shifts in the employment structure - plays a modest and mostly negative role in the changes in labor productivity. Proportions of the distribution of employment are shifted towards low-productivity activities and sectors (more than 41% of the employed are concentrated in trade and agriculture, while only a minority are engaged in high-productivity services and the manufacturing). Changes in the employment structure associated with the loss of jobs and transfer of workers, primarily from industrial sector to low-productivity ones, are causing a decline of the overall potential of labor productivity and economic growth.

The results of the study show that when developing structural policy, the goal should be to attain high productivity by changing the balance of power in the economy towards the formation of centers of economic growth based on encouraging investment in innovative and technological modernization and diversification of production.

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Received 01 November 2021

Accepted 08 December 2021