

STUDY OF THE IMPACT OF CYCLICAL UNEMPLOYMENT ON DYNAMIC OF GDP OF UKRAINE IN THE CRISIS CONDITIONS

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Abstract: *The article examines the impact of cyclical unemployment on dynamic of GDP of Ukraine in the conditions of systemic crisis (2014-2023). It has been also proposed the measures how to decrease cyclical unemployment rate and, in that way, decrease GDP of Ukraine in the future.*

Key words: *cyclical unemployment, unemployment rate, actual unemployment rate, natural unemployment rate, cyclical unemployment rate, GDP, potential GDP actual GDP, GDP gap.*

Labor market is a key element of any national economic system that characterizes well-being of a society and effectiveness of socio-economic reforms, and, on the other hand, mediates the impact of that development on the dynamics of most socio-economic processes, smoothing or exacerbating existing imbalances and divergence in the country. It is known that in 2014-2023 labor market in Ukraine developed in the extremely difficult conditions (or systemic crisis) that are Russian military aggression on the east of Ukraine (2014-2021), lockdowns (2020-2021), full-scale Russian-Ukrainian war (2022-2023) that led to the increase in an actual unemployment rate, especially frictional and cyclical unemployment, and “forced” migration and refugees. This determines the relevance of studying the problems of functioning and trends in the development of the modern labor market in Ukraine.

The aim of this study is to analyze the impact of cyclical unemployment on dynamic of GDP of Ukraine in the conditions of systemic crisis (2014-2023).

Detailed study of the dynamic of unemployment rate in Ukraine in 2014-2023 showed that it was characterized by high level of unemployment, especially cyclical unemployment, that impacted negatively on the dynamics of national production in Ukraine. In order to determine the quantitative impact of cyclical unemployment on the volume of GDP in Ukraine, it has been used Okun’s approach (formula (1)) and Kalman’s approach (formulas (2-3)). These approaches states that if cyclical unemployment as a product of business-cycle fluctuations exists in the country, then it leads to lagging actual GDP lags behind the potential GDP, that is, the appears so it will appear so-called “GDP gap”. In the study it has been used the following formulas:

$$\Delta Y = \frac{Y_A - Y_P}{Y_P} = -\beta \cdot (u_A - u_N) = -\beta \cdot u_C, \quad (1)$$

where ΔY is the GDP gap;

Y_A is an actual GDP;

Y_P is potential GDP;

β is Okun’s coefficient ($2 < \beta < 3$, in our case β is 2.5);

u_A is an actual unemployment rate;

u_N is natural unemployment rate;

u_C is cyclical unemployment rate;

$$\left. \begin{aligned} Y_t &= \check{Y}_t + \hat{Y}_t, \text{ where } \check{Y}_t = \check{Y}_{t-1} + \Delta \check{Y}_t + \eta_t & (2) \\ \hat{Y}_t &= \beta \cdot \hat{Y}_{t-1} + \mu_t, \quad 0 < \beta < 1 \\ \mu_t &= -\delta \cdot \hat{Y}_t + v_t \cdot \pi_t = \alpha \cdot \pi_{t-1} + (1 - \alpha) \cdot \pi^T + K \cdot \hat{Y}_{t-1} + \varepsilon_t & (3) \end{aligned} \right\}$$

where Y_t is an actual GDP;

\check{Y}_t is potential GDP;

\hat{Y}_t is GDP gap;

β is an autoregressive coefficient GDP gap with distributed lag;

$\varepsilon_t, \eta_t, \mu_t, v_t$ is supply shocks;

μ_t is cyclical unemployment rate;

δ is Okun’s coefficient ($\delta = 2.5$);

π_t is an inflation rate in the given year;
 π_{t-1} is an inflation rate in the base year;
 π_T is an inflation rate in the forecasting year;
 α is coefficient that characterize level of distrust of the population to the National (Central, Federal)

Bank;

$\Delta \ddot{Y}_t$ is an average change in potential GDP per year;
 K is slope of Phillips curve [1, c. 52-54].

The results of the author's calculations according to Okun's law (Table 2.1) indicate that the impact of cyclical unemployment on the dynamics of GDP of Ukraine is negative, and there is a steady trend of real GDP lagging behind the potential GDP that is called "inflationary gap in national production". Author's investigations also showed that inflationary gap increased by 1198.55 bln UAH (or by 553.7%) in 2014-2022 and increased by 1334.92 bln UAH (or by 553.7%) in 2017-2022 (Table 1) [3-5].

Table 1

Inputs for calculation of GDP gap of Ukraine using Okun's law

Indicators	Years					
	2017	2018	2019	2020	2021	2022
Actual GDP, bln UAH	2445.59	3083.41	3675.73	3818.46	4363.58	3810.9
Actual unemployment rate, %	9.9	9.1	8.6	9.9	10.3	21.1
Natural unemployment rate, %	6.00	6.00	6.00	6.00	6.00	10.00
Potential GDP, bln UAH	2709.76	3342.45	4062.83	3818.46	4889.16	5273.62
GDP gap, %	-9.75	-7.75	-9.75	-9.75	-10.75	-27.75
GDP gap, bln UAH	-264.17	-259.04	-387.1	-412.52	-525.58	-1462.72

The results of calculations using the Kalman's method (formulas 2-3) are similar that also confirms negative impact of cyclical unemployment and unexpected inflation on the dynamics of GDP of Ukraine (Table 2). It should be added that significant lag between actual GDP and potential GDP can be threat to further economic development of Ukraine in the future and it GDP gap of Ukraine can increase from 10 to 18% [4-5].

Table 2

Inputs for calculation of GDP gap of Ukraine using Kalman's law

Indicators	Years					
	2017	2018	2019	2020	2021	2022
Actual GDP, bln UAH	2445.59	3083.41	3675.73	3818.46	4363.58	3810.9
Actual unemployment rate, %	9.9	9.1	8.6	9.9	10.3	21.1
Natural unemployment rate, %	6,00	6.00	6,00	6.00	6.00	10.00
Potential GDP, bln UAH	2709.76	3342.45	4062.83	3818.46	4889.16	5273.2
GDP gap, %	-9.75	-7.75	-9.75	-9.75	-10.75	-27.75
GDP gap, bln UAH	-264.17	-259.04	-387.1	-412.52	-525.58	-1462.72

In order to decrease cyclical unemployment rate and, in that way, decrease GDP of Ukraine in the future, it is proposed to stimulate self-employment. To do this, it is needed to reform national tax policy by providing an improved regulatory framework for organizing own business and creating jobs. Strategic goal of that reform must be the formation of a favorable fiscal space for entrepreneurs using optimal combination of the following tools: decrease in income tax rate, implementation of accelerated depreciation, decrease in tax burden on the payroll, implementation of territorial tax benefits, simplification of the VAT refund procedure. Economists, politicians, government officials, experts, analysts should focus their efforts on

supporting industries with high added value because extended production cycle is one of the most important factors in economic growth rate, reducing the cost of production, increasing productivity and labor efficiency. The absence and low efficiency of the mechanism for attracting domestic and foreign investment, lack of a systematic approach to the implementation of innovations, asymmetry and structural imbalance of the national economy lead to the emergence of an inflationary gap in the economy of Ukraine. For that reason, it is also necessary to expand the sources of financial support for business by providing potential entrepreneurs with microgrants. One of the most common is a grant for own business in the field of processing industry, horticulture, viticulture, greenhouse farming through the Diia application that can be used by any Ukrainian if his or her business plan is submitted. Nowadays grants in "Diia" are provided for the purchase or leasing of the necessary equipment, raw materials as well as payment of rent. On the author's view it should be added also the opportunity to receive funding for the creation of new or improvement of existing goods, services, technologies, transfer of the newest technologies, remuneration of employees during first three to six months of operation of a new business.

All measures above will stimulate self-employment in Ukraine and will help to solve an actual macroeconomic problem that is real GDP lagging behind the potential GDP.

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