MACROECONOMIC ANALYSIS OF THE IMPACT OF THE REAL SECTOR OF THE ECONOMIC AND MONETARY POLICY INSTRUMENTS ON THE ECONOMIC GROWTH OF KAZAKHSTAN

Abstract. The macroeconomic analysis of the impact of monetary policy instruments on the development of the real sector of the economy of Kazakhstan was conducted in the article. It is established that the most important factor of economic growth in the studied sectors is loans to these sectors at the appropriate rate. It is revealed that GDP growth in some sectors of the real sector (manufacturing, construction, wholesale and retail trade) is very sensitive to changes in the volume of loans and interest rates. This allows to stimulate economic growth in the studied sectors of the national economy through the competent application of monetary policy instruments in the long run.

Keywords: monetary policy, real sector of the economy, economic growth, instruments of monetary policy

Modern studies devoted to the analysis of the impact of monetary policy on the dynamics of indicators of the real sector, are empirical in nature and demonstrate the application of various econometric methods. The authors of these papers confirm the existence of statistically and economically significant interrelations between changes in the values of monetary policy instruments and indicators of the real sector of the economy.

In many studies, the interest rate is considered as an indicator of monetary policy. This is typical for works devoted to the analysis of both the Kazakh economy and the economy of foreign countries. Many authors agree that a positive interest rate shock has a negative impact on economic activity[1]: because of the growth in the interest rate, there is a drop in output, consumption, investment and employment [2, 3]. For example, it is shown that because of the growth of the interest rate by 1 percentage point, the GDP falls by 0.2%, the construction industry's output decreases by 0.5% and the employment decline by 0.2%[4]. It follows from the studies that the drop in the volume of industrial output in this case is 0.6%[5].

The peculiarity of the monetary policy in Kazakhstan, which consists in changing the regime over the past two decades and choosing various targets for its activities over a historical period, has led to the emergence of varietymonetary policy indicators.

Some aspects of the influence of monetary policy tools, modelling and forecasting issues, based on the existing tools of the monetary policy, were investigated in the works of Kazakh scientists Mukhamediev B.M., Sembieva L.M., IshuovaZ.Sh.[6 - 8].

Based on the foregoing, determining the impact of the current monetary policy on economic activity in Kazakhstan proves to be quite important for choosing the priorities and content of the monetary authorities' policy for the fulfillment of certain tasks of economic development. The purpose of this study is to determine the impact of the National Bank of Kazakhstan on the dynamics of the main indicators of the real sector of the Kazakh economy.

Analysis of the state and factors of economic growth

The average annual growth of the economy of Kazakhstan in the period from 2000 to 2007 amounted to 10% - 10.2%, and from 2010 to 2014 was about 6%. In 2015 - 2016 years, the economic growth slowed to a level of 1-1.2%, which is due to external economic shock: oil quotations have fallen, respectively, the
growth of incomes of the population has slowed. The National Bank limited consumer lending and the conditions on the liquidity market deteriorated, aggregate demand began to contract[9].

The largest adverse impact on the Kazakh economy was a significant decline in prices for oil and metals in the world market, a drop in demand for Kazakhstan’s exports due to the recession and the slowdown in the growth of the economies of Russia, China and the Eurozone.

This is the lowest growth rate compared to 2000.

The devaluation led to a loss of confidence in the monetary policy of the national regulator and did not solve the key problems of Kazakhstan's monetary policy.

In Kazakhstan, traditionally, household spending was the main driver of growth. The share of their contribution to the growth of the economy was 65-90% in 2010-2013; in 2014, this figure was reduced to 5%.

By the end of 2015, the agricultural, construction and service sectors made a positive contribution to GDP growth. The decline in industrial production had a negative impact.

The growth was due to an increase in final government spending (by 1.9%), households (by 1.4%), non-profit organizations serving households (by 3.5%), as well as expenses for the accumulation of fixed capital (growth of 2.8%).

In 2016, GDP growth was 1.2%. So, the positive contribution to GDP growth in 2016 was provided by such sectors as construction (0.5 percentage points), transport (0.3 percentage points) and agriculture (0.3 percentage points). The decline in the extractive industry sector made the largest negative contribution to GDP (-0.3 percentage points).

The main factors of economic growth for 2016-2017 are positive trends in industry, construction, acceleration of growth in the areas of agriculture and transport, growth in lending to the economy, increased investment activity, increased exports of finished goods, implementation of the State Program "NurlyJol", anti-crisis measures, and launch of the Kashagan project.

Thus, Kazakhstan economy for the third consecutive year, since 2014, continues to reduce growth rates.

Since early 2017, Kazakhstan’s economy has entered a trajectory of recovery growth. Industrial production is growing at a faster pace, while other sectors of the economy are showing a gradual recovery. According to the results of 7 months of 2017, GDP growth was 4.2%. Drivers of economic growth are all the basic industries that are part of the short-term economic indicator (agriculture, industry, trade, transport and communications), as the share of these sectors in the GDP is 63.64%.

The main instrument of counter-cyclical economic policy for the medium-term period will be the implementation of the State Program for Infrastructure Development «NurlyJold», which will ensure the levelling of the influence of negative external factors [10].

The problems of the economy are chronic and fundamental and cannot be resolved by point measures, such as easing monetary policy or adjusting budget expenditures. These measures can bring a short-term success [9, p.17].

The reasons for the above problems lie in the weakness of the market environment caused by the dominance after the 2008-2009 crisis of state regulation of the market environment ("manual management"), the expansion of the quasi-public sector and development institutions.

Based on the foregoing, it can be concluded that the Kazakh economy is more adequate than the option of financial stabilization, but an industrial one, proceeding from the immediate orientation to raising production and restructuring the economy. Economic growth in this case from the very beginning is an integral part of macroeconomic stabilization, while with financial stabilization it acts as its derivative.

The monetary policy pursued by the National Bank of the Republic of Kazakhstan, based on generally accepted principles and instruments in the world practice, does not fully ensure the fulfillment of macroeconomic tasks. It is mainly aimed at curbing inflation. In addition, this policy hinders the possibility of a bank loan to ensure economic growth because of the high price and stringent conditions for its provision.

Kazakhstan during the financial crisis made changes in the tools of the monetary policy, but it did not change its current regime. Just like the developed countries, Kazakhstan used non-traditional measures to overcome the financial turmoil. The National Bank of the Republic of Kazakhstan was forced to shift the
focus from control over inflation to maintaining the stability of the banking system. Measures have been strengthened to increase the liquidity of banks and to maintain the continuity of settlements.

Currently, the purpose of the monetary policy is price stability, which implies achieving and keeping inflation at a low level. In these conditions, inflation targeting is preferred for Kazakhstan by the monetary policy regime.

The most important issue, insufficiently disclosed in Kazakhstan's economic literature, is the problem of the impact of the monetary policy on economic growth.

A study of literature on this topic shows that such studies are mainly conducted within the framework of the influence of the monetary policy on the growth of GDP as a whole, rather than its breakdown by economic activities.

We believe that it will be more appropriate to study the influence of monetary policy on various types of economic activity, taking into account that some studies show that such influence is not the same in different sectors of the economy [9].

Analysis and study of macroeconomic indicators of Kazakhstan by researcher Zh. Ishuyeva allows us to determine the percentage of variation of each economic shock in order to further improve the projected data of the monetary policy and economic growth [8, p.4].

In work [11], the impact of the Central Bank's monetary policy on economic growth was examined, where the thesis was confirmed that the tools and methods of this policy could only have an indirect effect on economic growth. This is due to the fact that the capacity of central banks to address these issues is limited not only by their mandate, but also by the list of monetary methods and instruments used.

**Research Methodology**

To verify these theses, we built an econometric model of the impact of monetary policy on the growth of output for various types of economic activity in Kazakhstan.

As the types of economic activity analyzed, the following sectors of the national economy were selected, in which about 60% of the country's GDP was produced over the period 2003-2015: manufacturing, agriculture, wholesale and retail trade, transport, construction.

As the tools of the monetary policy are selected: the rate for loans in the industry, the volume of lending to the industry, the level of monetization of the economy, consumer price indices or tariffs in industries, private deposits of individuals in banks.

All the data for the calculations were obtained from the official websites of the National Bank of the Republic of Kazakhstan and the Committee on Statistics of the Republic of Kazakhstan (annual data for the period 2003-2016).

**The result of the macroeconomic analysis of the impact of the real sector of the economy and monetary policy instruments on economic growth**

Before constructing the model, a standard procedure for checking variables for interdependence (multicollinearity) was carried out. For this, a matrix of pair correlation coefficients was constructed, which is reflected in Table 1.

As can be seen from the matrix, loan indicators, monetization of the economy and deposits of individuals have a very close interconnectedness. Given the under-utilized credit potential in Kazakhstan's economy, it was decided to include in the model loans to the non-financial sector of the economy.

<table>
<thead>
<tr>
<th></th>
<th>loan rate</th>
<th>Credits</th>
<th>monetization level</th>
<th>Consumer price index</th>
<th>private deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td>loans to the non-financial sector</td>
<td>-0.5295</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>level of monetization of the economy</td>
<td>-0.6624</td>
<td>0.6508</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer price indices</td>
<td>0.1805</td>
<td>0.0251</td>
<td>0.0782</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>private deposits of individuals in banks</td>
<td>-0.5214</td>
<td>0.9649</td>
<td>0.4949</td>
<td>0.0066</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Authors' calculations

To assess the impact of monetary policy on GDP growth in selected sectors, the following equation was evaluated:
\[ \Delta Y = \beta_0 + \beta_1 \times \Delta t + \beta_2 \times \Delta l + \beta_3 \times \Delta CPI, \]

where \( \Delta Y \) - change in GDP by economic activity; \( \Delta t \) - change in interest rates on loans; \( \Delta l \) - change in the volume of loans; \( \Delta CPI \) - change in the consumer price index; \( \beta_1, \beta_2, \beta_3 \) - coefficients of proportionality of the change in \( Y \) with change, \( t, l, CPI \).

To study the relationship between changes in indicators and growth of output for selected types of economic activity, multiple regression equations were constructed. The evaluation of the quality of the obtained multiple regression equations showed that of the selected six types of economic activity in only three (manufacturing, construction, wholesale and retail trade), there is a link between GDP growth and monetary indicators.

Further, a matrix was constructed from the coefficients of the regression equations obtained to describe the output growth from the change in the selected indicators (Table 2):

**Table 2** - Matrix of the coefficients of the multiple regression equations for the real sector of the economy of the Republic of Kazakhstan

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Sector</th>
<th>manufacturing</th>
<th>industry</th>
<th>trade</th>
<th>construction</th>
<th>transport</th>
<th>Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans</td>
<td>11,1</td>
<td>2,1</td>
<td>1,42</td>
<td>3,13</td>
<td>0,055</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest rates</td>
<td>-4,0</td>
<td>-13,3</td>
<td>-8,3</td>
<td>-7,3</td>
<td>-16,4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation</td>
<td>-0,46</td>
<td>-0,10</td>
<td>-0,43</td>
<td>-0,072</td>
<td>-1,27</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors' calculations

Based on the data in Table 2, the following conclusions can be drawn.

First, the most important factor of economic growth in these industries is loans to these sectors at the appropriate rate. Therefore, in industry, an increase in the volume of loans by 1% causes GDP growth by 0.157%, all other things being equal.

Secondly, the growth of interest rates on loans leads to a decrease in economic growth in the sectors under consideration. In particular, an increase in interest rates by 1% leads to a decrease in GDP growth in processing industries by 0.30%, other things being equal.

**Table 3** - Parameters of the regression model between GDP and the instruments of monetary policy of the Republic of Kazakhstan

<table>
<thead>
<tr>
<th>Coefficientsoftrend</th>
<th>CoefficientsofitdeterminitionR^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constantcoefficient</td>
<td>Interestrateonloans, %</td>
</tr>
<tr>
<td>Amount of loan, mln.</td>
<td>The level of monetization</td>
</tr>
<tr>
<td>tenge</td>
<td>of the economy, %</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>25300,1</td>
</tr>
<tr>
<td>industry</td>
<td>30308,7</td>
</tr>
<tr>
<td>Construction</td>
<td>55617,3</td>
</tr>
<tr>
<td>trade</td>
<td>51549,9</td>
</tr>
<tr>
<td>agriculture</td>
<td>62934,7</td>
</tr>
<tr>
<td>transport</td>
<td>17232,1</td>
</tr>
</tbody>
</table>

The rate on loans to the real sector of the economy has a negative impact on economic growth. An increase in the loan rate by 1% has the greatest impact on agriculture (3932.0 million tenge), the least - on transport (1200.4 million tenge). The volume of credit to the economy sectors positively influences the growth of the economy, with the largest impact on the transport (growth of the volume of transport services by 65.5 million tenge) and industry (31.69 million tenge), the lowest - for agriculture (17.7 million tenge) and trade (15.42 million tenge). The level of monetization of the economy adversely affects the growth of the economy, with the greatest impact on construction (-1514.4 million tenge) and trade (-901.9 million tenge). The increase in the price level and the volume of the loan for 1 unit in construction positively affects GDP growth, respectively, by 1025.5 million tenge and 23.32 million tenge.
Coefficients of correlation between output by the manufacturing industry, transport and the level of monetization of the economy and the price / tariff index were not significant. Therefore, these indicators were removed from further calculations.

The level of monetization and the price / tariff index in the sectors under consideration have not an unambiguous impact on economic growth. In general, the increase in the level of monetization negatively affects the growth of the economy. The growth of tariffs and prices positively affects industry and construction, negatively - on agriculture.

In general, the study showed that over the period 2003-2016. The influence of the monetary policy on GDP growth in different sectors of the economy was not the same. Nevertheless, it was revealed that GDP growth in some sectors (manufacturing, construction, wholesale and retail) is very sensitive to changes in the volume of loans and interest rates. Consequently, the National Bank, by facilitating an increase in credit investments in the economy of Kazakhstan, can stimulate economic growth in these sectors of the national economy.

The high degree of saturation of the economy by the money supply does not necessarily carry a significant inflationary component[12]. A high level of monetization of the economy can be with low inflation, which is clearly shown in Table 4.

The presence of high interest rates makes the economy and CIS producers uncompetitive. For financial support of economic growth, it is necessary to reduce rates, increase the level of monetization and, on the basis of economic development, to ensure GDP growth.

<table>
<thead>
<tr>
<th>Country</th>
<th>The level of monetization of the economy</th>
<th>Domestic credit, % of GDP</th>
<th>GDP per capita, USD</th>
<th>Inflation rate, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>60.26</td>
<td>52.4</td>
<td>12735.9</td>
<td>7.2</td>
</tr>
<tr>
<td>Belarus</td>
<td>30.76</td>
<td>42.8</td>
<td>8040</td>
<td>18.1</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>33.7</td>
<td>37.6</td>
<td>12276.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Ukraine</td>
<td>61.07</td>
<td>110</td>
<td>3082.5</td>
<td>14.7</td>
</tr>
</tbody>
</table>

Source: Data[12]

Monetization of the economy is a key factor in solving the problems of accelerated economic growth. There is an objective relationship between the level of monetization and the degree of development of the country's economy, which is confirmed by statistical data. This pattern can be a proof that an unconditional factor of increasing the country's wealth level in the long term is the presence of a non-inflationary environment to increase the level of monetization of the economy.

In Kazakhstan, the lowest level of monetization in 2016 was -33.7% (Table 4). That is, despite the steady growth of the money supply in the RK, its level remains insufficient to ensure high rates of economic growth.

In general, the study showed that over the period 2009-2016, the impact of monetary policy on GDP growth in different sectors of the economy was not the same. Nevertheless, it was revealed that GDP growth in some sectors (manufacturing, construction, wholesale and retail) is very sensitive to changes in the volume of loans and interest rates. Therefore, the National Bank of the Republic of Kazakhstan, by facilitating an increase in credit investments in the economy of Kazakhstan, can stimulate economic growth in these industries without increasing inflation.

The directions of monetary policy are determined by the tasks of the National Bank aimed at reducing inflation, ensuring the stability of the national currency, and creating the conditions for the functioning of the financial system of the country relevant for the relevant period.

Conclusions. An analysis of the impact of monetary policy on the growth of the country's economy showed that Kazakhstan's economic growth over the past two years has been at a minimum level over the past five years, and expectations for 2017 are connected with its further deceleration. Against the background of other countries, participating in the Eurasian Economic Union, Kazakhstan demonstrates higher indicators. Nevertheless, almost all the growth is provided by the production of services, while the contribution of production of goods to GDP growth, unlike the partners in the EAEU, remains insignificant.

The conducted research showed that for the period of 2003-2016 the influence of monetary policy on GDP growth in different sectors of the real sector of the economy was not the same. Nevertheless, it was
revealed that GDP growth in some sectors (manufacturing, construction, transportation, wholesale and retail trade) is very sensitive to changes in the volume of loans and interest rates. Consequently, the National Bank, by facilitating an increase in credit investments in the economy of Kazakhstan, can stimulate economic growth in these sectors of the national economy.

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ҚАЗАҚСТАНДЫҢ ЭКОНОМИКАЛЫҚ ОСУІНЕ АҚШ-ПЕСИЕ САЯСАТЫНЫҢ КУРАЛДАРЫ МЕН НАҚТЫ ЭКОНОМИКА СЕКТОРЫНЫҢ ЭСЕРІ МАКРОЭКОНОМИКАЛЫҚ ТАЛДАУ

Анотация. Макролада Қазақстандың экономикалық осуіне әкіп-нәсие саясатының ықтималдары мен экономикалық нәсие секторының экономикалық әсерін талдаған. Зерттеу әр түрлі сызған салалар бойынша экономикалық осуіңе әсер ететін екі басты факторды - әсір беретін мен айналысқа сақтап келетін салалар. Экономикалық осуіңе қейінқі нәсие экономика жарык қыласы (әуеде, құралы, сауда) нәсие мен айналысқа сақтпалуына әсер етеді. Бұл зерттеу нәсілте көп мәртебе әкіп-нәсие саясатының ықтималдарына қолдау қабылуы мен әкіп-нәсие саясатының ықтималдарына қолдау қабылуына әсер етеді.


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МАКРОЭКОНОМИЧЕСКИЙ АНАЛИЗ ВЛИЯНИЯ РЕАЛЬНОГО СЕКТОРА ЭКОНОМИКИ И ИНСТРУМЕНТОВ ДЕНЕЖНО-КРЕДИТНОЙ ПОЛИТИКИ НА ЭКОНОМИЧЕСКИЙ РОСТ КАЗАХСТАНА

Анотация. В статье проведен макроэкономический анализ влияния инструментов денежно-кредитной политики на развитие реального сектора экономики Казахстана. Установлено, что наиболее важным фактором экономического роста в исследуемых отраслях выступают кредиты этим отраслям по соответствующей ставке. Выведено, что рост ВВП в некоторых отраслях реального сектора (обрабатывающие производства, строительство, охотничья и розничная торговля) очень чувствителен к изменению объема кредитов и процентных ставок. Это позволяет стимулировать экономический рост в исследуемых отраслях национальной экономики посредством грамотного применения инструментов денежно-кредитной политики в долгосрочном периоде.

Ключевые слова: денежно-кредитная политика, реальный сектор экономики, экономический рост, инструменты денежно-кредитной политики.

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