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DOI: 10.19195/1733-5779.19.3

Economic features of monetary policy of countries in transition and their influence on unemployment rate of Ukraine

JEL classification: E520, J480

Słowa kluczowe: pieniężno-kredytowa polityka, bezrobocie, rynek pracy, kraje z gospodarką przejściową, instrument rynku pieniężnego

Keywords: monetary policy, unemployment, labor market, countries in transition, monetary instruments

Abstrakt: Celem artykułu jest zbadanie roli polityki pieniężnej w stymulowaniu rynków pracy. Artykuł identyfikuje instrumenty polityki pieniężnej, które mają wpływ na rynek pracy w krajach w okresie transformacji. Zbadane czynniki to potoki inwestycyjne, tempo inflacji i stopa oprocentowania. Dane otrzymano z Światowego Banku, Międzynarodowego Funduszu Walutowego i Narodowego Banku Ukrainy. Empiryczne wyniki wykazują, że wysokie stopy oprocentowania krajów w UE są prawie najniższe w porównaniu do gospodarek w okresie przejściowym, które wskazują na istniejące ryzyko i nietrwałość ekonomicznego systemu krajów przy przejściu. Ponadto artykuł ujawnia, że duży wkład kapitałowy do produktu krajowego brutto kraju przedstawia Białoruś. Badanie zostało przeprowadzone z wykorzystaniem metody wyjaśnień teoretycznych, analizy opisowej i ekonometrycznej. Wyniki empirycznego badania wyznaczyły, że w latach 2008–2016 można zaobserwować istotny związek między stopą dyskontową, liczbą rządowych cennych papierów i stopą bezrobocia Ukrainy. W związku z tym Ukrainie nadano rekomendacje, aby zniżyć stopy dyskontowe w celu stymulacji inwestycje do kraju.

Ekonomiczne właściwości pieniężno-kredytowej polityki i ich wpływu na stopę bezrobocia Ukrainy

Abstract: The aim of the article is to investigate the role of monetary policy in stimulating labor markets. The paper identifies instruments of monetary policy that affect labor market of countries in

Studenckie Prace Prawnicze, Administratywistyczne i Ekonomiczne 19, 2016

transition. The examined determinants are investment inflows, level of inflation and interest rate. Data were collected from the World Bank, the International Monetary Fund and the National Bank of Ukraine. The empirical results reveal that high interest rates of the countries in the EU are almost the lowest in comparison to those in transition economies, which reflects existing risk and instability of the economic system of countries in transition. Furthermore, the paper discovers gross capital investment to GDP per country and demonstrates Belarus leading in inflows of investment to the country. The research was conducted using the methods of theoretical explanations, descriptive and econometric analysis. The results of the empiric research have determined that for the period 2008–2016 a significant relationship between refinance rate, amount of government securities and unemployment rate of Ukraine is observed. Consequently, Ukraine is provided with recommendations to decrease refinance rate for the purpose of stimulating inflows of investment to the country.

Introduction

In the light of cyclical nature of economies and negative effects of unemployment, the challenges of stimulating employment and increasing the effectiveness of labor market regulation are of immediate interest. Compared to developed countries with a market economy, whose low employment rate resulted from the global financial crisis, countries in transition cannot handle ingrained weaknesses in regulating labor markets.

The main question in analyzing national employment policy is whether monetary policy is of key importance in encouraging employment. For this reason, we will compare the structure of monetary policy of countries with transition economies to monetary instruments in developed countries and based on conducted comparison we expect to explain high unemployment rate in number of countries in transition. In the final part of our research paper, we will carry out an econometric analysis of how instruments of monetary policy affect the level of unemployment on Ukrainian labor market and following on from the results some recommendation for Ukraine will be proposed.

Theoretical framework of monetary policy

Monetary policy is one of the main components of macroeconomic policy, the aim of which is to provide steady price level and real production growth along with achieving full employment. Due to the changes in money supply inside the country, a central bank can adjust exchange rates and volume of banking credits. Central banks always have to make a decision, which objectives have to be accomplished, as one target of monetary policy can contradict achieving the other. For instance, high employment rate is impossible with simultaneous supporting steady price level, as on stage of expansion when unemployment rate is decreasing, interest rates and level of inflation are growing instead[1].

[1] S. Panchyshyn, P. Ostroverch, *Introduction to Analytical Economy. Macroeconomics*, Kyiv: Znannia, 2009, p. 631

Economists divide monetary policy on expansionary and contractionary one. By conducting contractionary policy, the central bank is aiming to shorten money supply in the country that will decrease the level of inflation. According to this policy, which is also known as tight money policy, the central bank sells government bonds on the open market, increase bank reserve requirements and refinancing rate[2]. These instruments reduce money supply and level of inflation as well, but in this case interest rates are rising and the volume of investments is shrinking, causing negative affect on the sphere of employment.

Expansionary monetary policy, which is known as easy money policy, is directed at stimulating sphere of employment and economic growth. The central bank's actions are opposite to actions in contractionary policy. Fluctuations of refinancing rate, which is a percentage for crediting commercial banks, trigger changes in cost of consumer credit. Reduction of real interest rates encourages inflow of investments to the country, as it is the main indicator investors are relying on. Inflows of investment move aggregate expenditure curve upwards and lead to enlargement of production and increase of the employment rate.

We can trace dependence between chosen monetary policies, investment flow and employment rate in the country. This effect refers to the transmission mechanism of monetary policy that describes impact of the central bank on variables of macroeconomics. The mechanism of monetary policy influencing volume of national production is described on Figure 1.

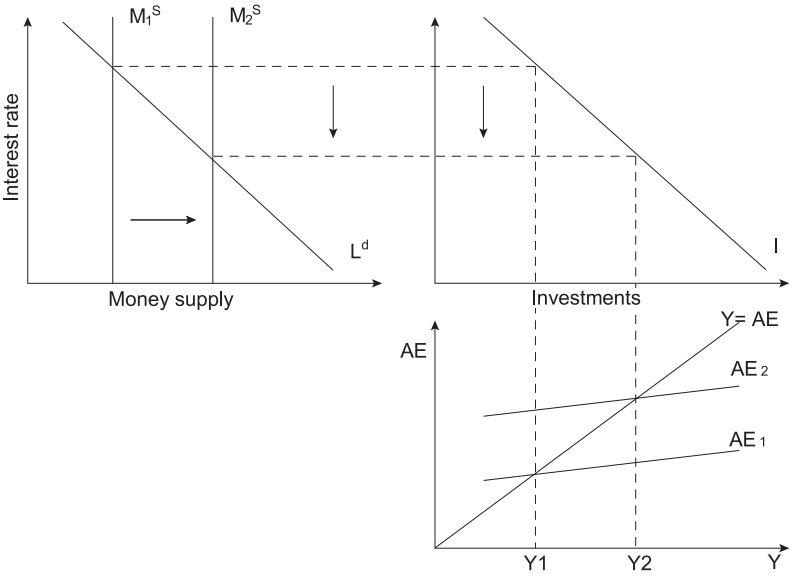

Figure 1. Impact of money supply on inflows of investment and level of national production

Source: O. Bazilinska, Macroeconomics, 2nd ed., Kyiv: Learning resource center, 2009, p. 253.

[2] M. Myronenko, *Directions of Realization of Credit and Monetary Politics under Crises*, Vinnytsia: VNAU, 2012, p. 211–215.

The central bank is encouraging inflows of investment to the country by choosing a specific channel of influence that will result in expending of real sector of economy and recovery of the labor market. Accordingly, we can trace the relation between the selected type of monetary policy, the flow of investment and employment in the country, which is known as the transmission mechanism of monetary policy. One of the main channels that refers to the transmission mechanism is interest rate channel[3]. The channel is widely used in macroeconomic models and underlies in IS-LM model that explains the relation between the interest rate and investment. This mechanism suggests that the central bank regulates the amount of liquidity in circulation which can stimulate investment incentives. By the interest rate channel we mean refinancing rate, interest rates for overnight loans, for refinancing loans granted by the tender and for deposit certificates. These are the primary instruments of monetary policy and as they are related to refinancing rate, we will mainly refer to this rate in our proceeding analysis.

Although unemployment rate raised dramatically almost in every country due to the financial crisis, a strongly pronounced tendency towards high unemployment rate in transition countries is traced (see Figure 2).

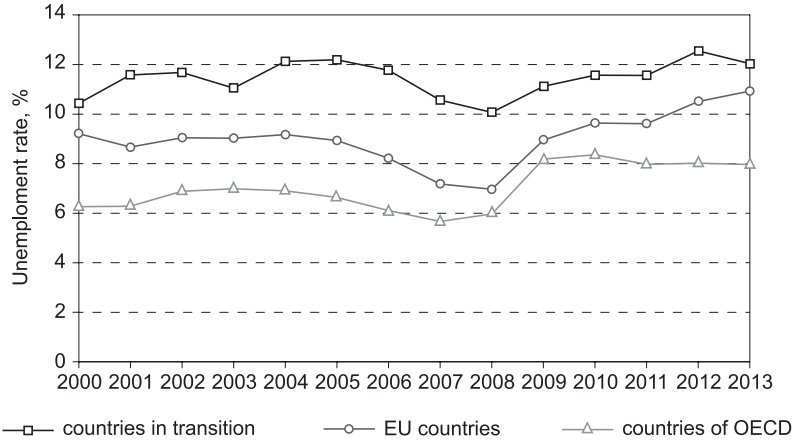

Figure 2. Unemployment rate of countries in transition, EU countries, countries of OECD, %

Source: own elaboration based on: IMF data, http://data.imf.org/; The World Bank data, http://data.worldbank.org/indicator/SL.UEM.TOTL.ZS.

Taking into consideration Figure 1, we can notice that since the beginning of new century countries in transition have had the highest unemployment rate and this tendency has been continuing up to nowadays. The most drastic consequences of the economic crisis are visible in the EU countries with the unemployment rate

[3] P. Ireland, The Monetary Transmission Mechanism. *SSRN Electronic Journal* 2005, p. 4.

grown by 3.9% and gradually approaching the unemployment rate of countries in transition.

High unemployment rate can result in negative economic consequences with real GDP reduction. The relation between these indicators has been observed by prominent American economist Arthur Okun, who has proved that 1% increase in unemployment rate causes 2% fall in GDP[4]. Financial market crash, boom in interest rates, lowering of real income of population are main outcomes of GDP decline that are effecting national welfare at large.

Dynamics of instruments of monetary policy

As already stated, inflows of investment have great influence on the sphere of employment and are depended on refinancing rate. The distinctive feature of Ukrainian monetary policy is continuous growth of refinancing and interest rates. In 2015 refinancing rate has increased to 30%, while average weighted interest rate was fixed on 21.9% for residents, 16.7% for nonfinancial institutions and 28.9% on consumer credits for households[5].

Actual dynamic of interest rates in transition economies and in countries of Central and Eastern Europe is examined in Figure 3.

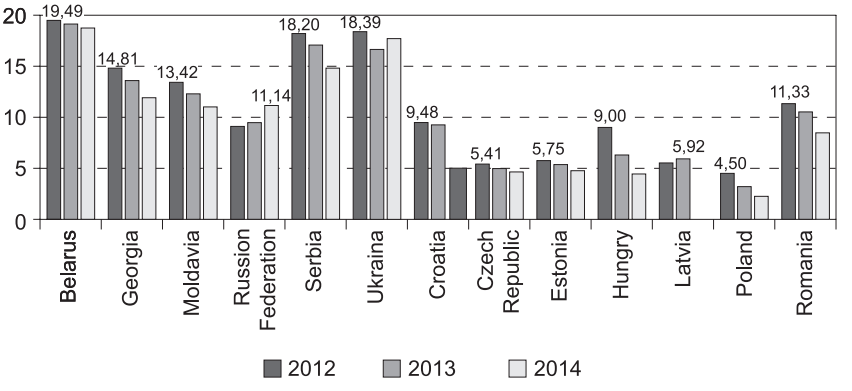

Figure 3. Dynamic of interest rates in transition economies and in countries of Central and Eastern Europe during 2012–2014, %

Source: own elaboration based on: IMF data, http://data.imf.org/; The National Bank of Poland, http://www.nbp.pl/homen.aspx?f=/en/publikacje/instruments/instruments.html&navid=5508.

As demonstrated in the Figure 3, Ukraine is among countries with the highest interest rate. Unfortunately, the situation in Ukraine is the following: high interest rates are not encouraging the development of real sector of economy

[4] http://www.investopedia.com/terms/o/okunslaw.asp.

[5] The National Bank of Ukraine, *Bulletin of the National Bank of Ukraine: Statistical Materials*, http://www.bank.gov.ua/files/stat.pdf, 2015, p. 93–120.

and creation of new working places. As a production of goods and services is the main activity of nonfinancial institutions, restricted access to banking credits due to high interest rates is an obstacle to the expansion of commodity market along with labor market. Furthermore, commercial banks are providing consumer credits for households who are increasing aggregate expenditure and, therefore, promoting production of goods and services. Due to high interest rates, the Ukrainians lose opportunities to satisfy their own needs that are to encourage the entire economy. Therefore, interest rates are of great significance to the economy.

It should be noted that high interest rates of the countries in the EU are almost the lowest in comparison to transition economies. This may be caused by the presence of risk and instability of the economic system of countries in transition. Several reasons for abstinence from credit supporting the real sector can be emphasized: deterioration of payment-worthiness of the borrowers, caused by prolonged political tension, existing inflation expectations and threat to impose martial law in Ukraine. By increasing interest rates, commercial banks are tending to limit its exposure. Nevertheless, these actions can result in losing prospective borrower, who could encourage development of the real sector due to inflows of investment to the production. Another situation is observed in Poland where interest rate since 2012 has been the lowest in Central and Eastern Europe and in 2014 it amounted to 2.4%. Whereas this indicator is so low, the Central Bank of Poland has achieved to create positive investment environment.

Further, it is important to conduct analysis of interest rates in Ukraine based on types of economic activity (see Figure 4). The major part of credits received trade sector and processing industry with interest rate amounting to 19% and 17% respectively. Moreover, the lowest support gets primary sector, as interest rate on crediting this sector is highest in comparison to other industries and equip 24%.

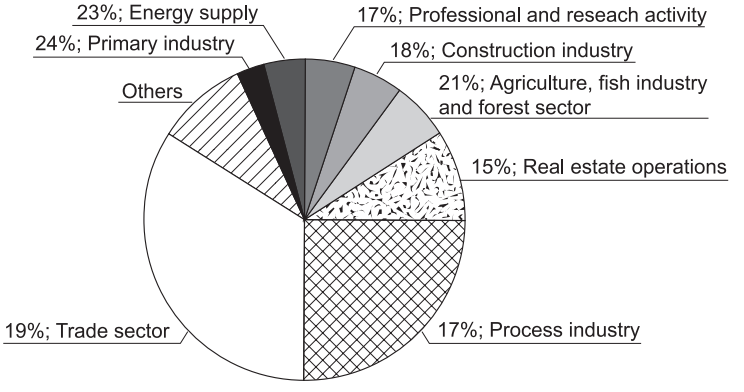

Figure 4. Analysis of interest rates in Ukraine depending on the types of economic activity, %

Source: own elaboration based on data of the National Bank of Ukraine, http://www.bank.gov.ua/control/uk/publish/category?cat_id=57896.

In general, this research shows that Ukrainian credit system is not stimulating the expansion of the real sector, neither encourages the development of sunrise industries, nor revives the labor market. The same situation is perceived in other countries in transition and can lead to declining investments and growing unemployment rate.

There are three main forms of investments: reinvestments, financial and capital investments. Capital investments refer to gaining productive capital of enterprises. During the first half of 2015, a slight drop in the monetary fund (see Figure 5), which is divided by economic activity, could be traced. It is crucial to take into account the level of inflation in the country, as it affects real amount of investments. Thereby in our analysis, we are using capital investments index that reflects real changes in money flow, as it measures the volume of investments with respect to the price index in 2010 base year.

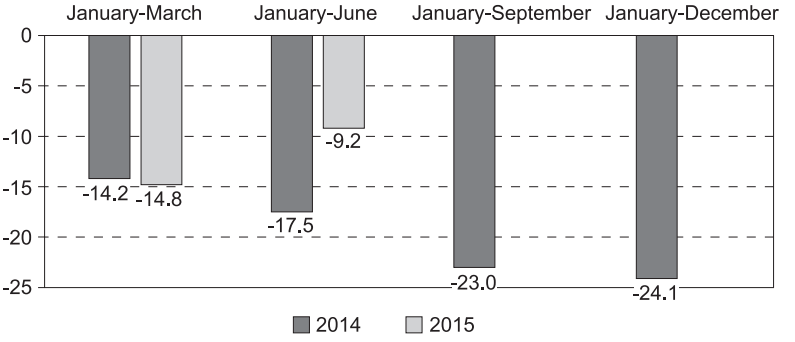

Figure 5. Decline in capital investment index in comparison to previous year in Ukraine, %

Source: State Statistics Service of Ukraine, 2015, Social and economic development of Ukraine, p. 13.

As Figure 5 indicates, there is a surplus of investments in the country in the first half of 2015 compared with the previous year, but considering the presence of inflation the real cash inflow to Ukraine has not been traced since the first quarter of 2013. In the first quarter of 2015 significant losses experienced both industry and financial and insurance activities when investments declined by 47.4% and 53.8% respectively compared to the corresponding period in 2014. Decreasing flow of investments in trade sector (–20.6%) and in construction sector (–28.1%) can be observed as well. It is necessary to mention that the sectors with declining investments have crashed but are with good prospects and of great significance to Ukraine. Due to the unstable political situation in Ukraine, large companies have nothing but to curtail their production. The following situation appears in the Donbass region, where production volumes during the first half of 2015 decreased by 49%[6], which threatens a decrease in GDP, rising unemployment rate in the region and in entire Ukraine.

[6] Central Statistical Department in the Donbass Region, 2015, Index of Industrial Production in January–August 2015, http://donetskstat.gov.ua/statinform1/industry2.php.

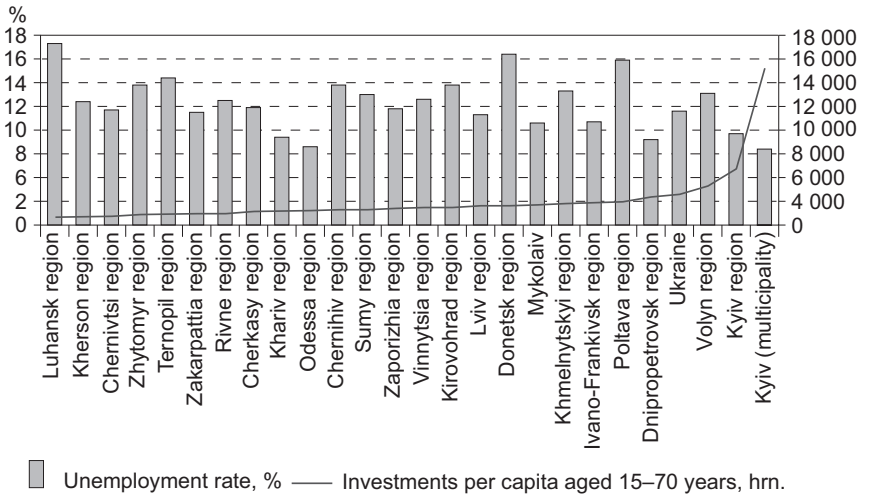

Figure 6. Changes in capital investment index in Ukraine in 2014–2015 year, %

Source: Public Employment Service, http://www.dcz.gov.ua/statdatacatalog/document?id= 350793.

The analysis of changes in employment rate caused by inflows of monetary funds has to be conducted with the aim of evaluating impact of investments on labor market. On quarterly data for the year 2015 it was revealed that Luhansk region has the highest unemployment rate and the lowest investments per capita in comparison to other regions of Ukraine (see Figure 6). On the contrary, Kyiv city is receiving the highest amount of money and has the lowest unemployment rate. Although, we cannot give evidence of the strong tendency between these indicators, as correlation ratio equals to –0.41 that means weak negative relationship. The point at issue is whether investments are 100% targeting output expansion, creating new vacancies and developing the entire Ukrainian economy.

For the overall national economy of Ukraine, capital investments to GDP show a significant relation with employment. Since correlation ratio amounts –0.897, unemployment rate of Ukraine is highly influenced by capital investments. Thereby, it is crucial to increase inflows of investment to Ukrainian economy, considering at least the fact that Ukraine is a country with the lowest inflows of capital investment within other countries in transition (see Figure 7).

Figure 7 reveals that Belarus is leading in inflows of investment to the country in comparison with both countries in transition and countries with market economy. In 2010 investments to Belarus equaled to 41% of GDP, although indicator declined and in 2014 amounted to 33%. Latvia and Estonia faced significant losses, as between 2007 and 2014 investments fell by 16% and 11% respectively. Before the economic crisis, Poland received 25% of GDP as investments to the country and after suffered only 4% drop in 2012 and 6% fall in 2013.

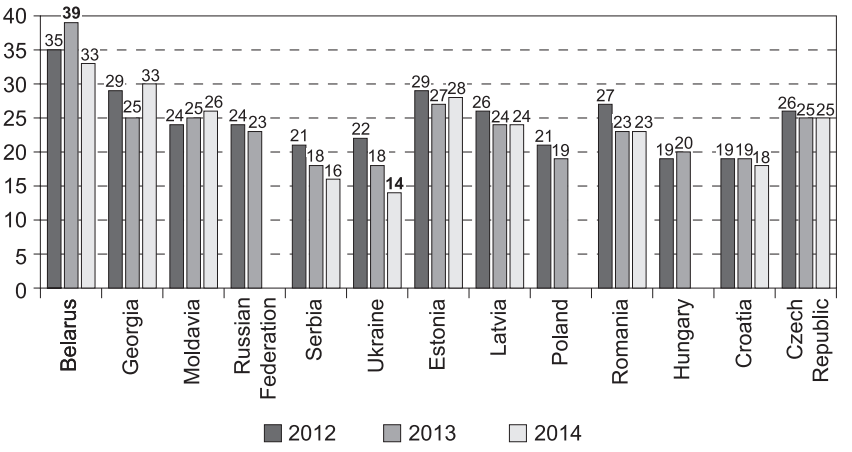

Figure 7. Gross capital investment to GDP in 2012–2014, %

Source: own elaboration based on data of the World Bank, http://data.worldbank.org/indicator/NE.GDI.TOTL.ZS.

Relationship between instruments of monetary policy and unemployment rate

To emphasize the importance of monetary policy in reducing the unemployment rate, we conducted an econometric analysis of how the unemployment rate is affected by instruments of monetary policy. Based on quarterly data since 2008 year, we derived the following regression model:

$$\tilde{y} = 3.939 + 0.359 * y_{t-1} + 0.186 * RR_t - 0.975 * R\_hrn_t + 0.253 * Log(Bonds)_t - 0.21 * Log(Foreign\_cur)_t - 0.128*Seas(1)_t - 1.552*Seas(2)_t - 1.608*Seas(3)_t + \varepsilon_{1t}$$

Parameter y determines unemployment rate in Ukraine (%), UR_{t-1} is unemployment rate for the previous period (%), parameter *RR* is refinance rate (%), R_ hrn is reserve requirements for deposits in hryvnias (%), Bonds stands for the purchase and sale of government securities, parameter Foreign_cur — amount of exchange selling (mln. $). Parameters seas(1), seas(2), seas(3) reflect seasonal processes in unemployment rate that depend on temporary works and ε_1 is a stochastic value. Taking into consideration that changes in endogenous variables cannot provide immediate result in unemployment rate, it was necessary to include the parameter unemployment rate of the quarter before, which reflects lags in economy. Statistical characteristic of the model are shown in Table 1.

Table 1. Statistical characteristic of the series

Dependent Variable: UR
Method: Least Squares
Sample (adjusted): 2008Q2 2016Q1
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
UR(-1)	0.358788	0.170133	2.108866	0.0466
RR	0.185874	0.046277	4.016572	0.0006
R_HRN	0.975134	0.231599	– 4.210445	0.0004
LOG(BONDS)	0.252995	0.070648	3.581082	0.0017
LOG(FOREINGN_CUR)	– 0.209870	0.269424	– 0.778955	0.4443
C	3.939475	3.734694	1.054832	0.3029
@SEAS(1)	– 0.127489	0.292843	– 0.435349	0.6676
@SEAS(2)	– 1.551817	0.326592	– 4.751550	0.0001
@SEAS(3)	– 1.607475	0.250425	– 6.418979	0.0000

Source: own elaboration based on data of the National Bank of Ukraine, https://bank.gov.ua/control/en/publish/articleshowHidden=1&art_id=27893044&cat_id=8782106&ctime=1456402130048#1.

Based on the t-statistics all parameters except Foreign_cur are significant. According to coefficient of determination R^2, the model contributes 89% to explanation of the unemployment rate. As F-statistics is 21.93 and p-value = 0.000000, we can come to a conclusion that model is adequately built. Durbin-Watson statistics equals 2.09 and means absence of autocorrelation in the residuals.

As anticipated, the unemployment rate is in a positive relation with the refinance rate and government securities. Following on from the results if the refinance rate increases by 1%, unemployment rate of Ukraine will rise by 0.36%. Likewise, if the amount of sold government securities grows by 1%, the unemployment rate will increase by 0.25%. Though, we obtained a rather questionable result concerning reserve requirements. Consistently when reserve requirements are growing, unemployment rate should grow either. Less money in circulation causes less investments, less production and working places. In our analysis, we received opposite result that shows readers that 1% growth of requirements gives rise to unemployment rate by 0.98%. The reason for this misleading result is that requirements for deposits in hryvnias for the period since 2009 to 2014 year were cancelled, but the unemployment rate was still growing. When we changed this parameter for average reserve requirements for deposits in national currency, dollars and deposit at call we received the result where dependence between the unemployment rate and rethe finance rate is insignificant, but more dependent on the amount of exchange selling.

Conclusions

The aim of the paper is to investigate the relationship between instruments of monetary policy and the unemployment rate. Analysis of monetary policy shows that the central banks of countries in transition have to reject some social problems in order to achieve full employment. Increases in level and duration of unemployment are inevitable but not the only problems on the way of market transition. Countries face the problem to choose between eliminating inflation and stimulating employment.

One important finding, revealed by the empirical results, is the existence of a strong relation between the refinance rate, government securities and the unemployment rate in Ukraine. Based on the analysis, we obtained strong correlation coefficient for the econometric model during the period 2008–2016. The overall result indicates that the National Bank of Ukraine has to decrease the refinance rate and selling of government bonds, therefore, to stimulate money inflows to economy and increase production. Besides, we reveal a conflict on theoretical level between unemployment and reserve requirements for national deposits. After replacing the parameter with average reserve requirements, we obtained the insignificant dependence of the unemployment rate from the refinance rate.

However, we would recommend the National Bank of Ukraine to decrease refinance rate that was growing in previous year and reached its maximum at the rate 30%. Nowadays, the tendency for the reference rate is much more positive, and basing on econometric model we expect the unemployment rate to decrease in the following the two quarters.

Summary

In the light of cyclical nature of economies and a negative effect of unemployment, the challenges of stimulating employment are of key importance to the governments. The main question in analyzing national employment policy is whether monetary policy is directed on encouraging employment. Compared to developed countries with a market economy, whose low employment rate resulted from the global financial crisis, countries in transition cannot handle ingrained weaknesses in regulating labor markets. For this reason, it is highly important to investigate the influence of monetary policy on labor markets of countries with transition economies.

To emphasize the importance of monetary policy in reducing the unemployment rate, we conducted an econometric analysis that shows the unemployment rate of Ukraine is in strong relation with the refinance rate and sold government securities.

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