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DYNAMIC APPROACH TO MONETARY POLICY EFFECTS MODELING IN UKRAINE

By pursuing a balanced and rational monetary policy, the National Bank aims to ensure stable prices, which protects incomes and savings from their depreciation. However, this was not always the case, for example until 2016 in Ukraine the main purpose of the NBU was to keep the exchange rate constant, but in 2013-2014, the National Bank decided to switch to inflation targeting (IT), which proved its effectiveness in many countries of the world. The new monetary regime has changed the power of the transmission mechanism, in particular the interest rate channel and the inflation expectation channel have become more significant and perhaps one of the key ones in passing the change in the key policy rate to real sector and inflation. The transition to IT necessitates a careful study of the impact of monetary policy on macroeconomic stability under both regimes and comparing their actions to fully understand how qualitatively and strongly the central bank can influence the country's economy and prices in particular in conditions of macroeconomic instability, significant level of shadow sector, financial crises and military conflicts. By the way, the high level of the shadow economy is a common problem for many countries and should therefore be taken into account when examining the effectiveness of monetary policy, since it somewhat distorts the effects of monetary instruments on the real sector.

SD model with several sectors [2] will be developed to be able to estimate quantitatively the effects of monetary policy on macroeconomic stabilization after change of monetary policy regime. The causal-loop diagram draft of the aggregate version of such model shown on Fig.1 consists of eight loops: 5 reinforcing and 3 balancing [4]. The presented diagram assumes that the future model will represent the

effects of key monetary transmission channels, namely interest rates, inflation expectations, exchange rate, asset pricing and credit channel [1]. Monetary policy is implemented through changes in certain monetary instruments. Changes in monetary policy instruments affect the monetary conditions that on the first stage of the transmission mechanism's impact on the financial sector of the economy, in particular, on the interbank, deposit, credit interest rates, on the securities market prices, the exchange rate of the national currency [5]. In the second stage, changes in the financial sector are transferred to the real sector (savings, consumption, investments, net exports), which ultimately affects employment, production and price stability. Besides that, changes in monetary instruments affect the shadow sector, as it is a part of the real economy, which follows the market rules, some of which are formulated by the influence of the central bank.

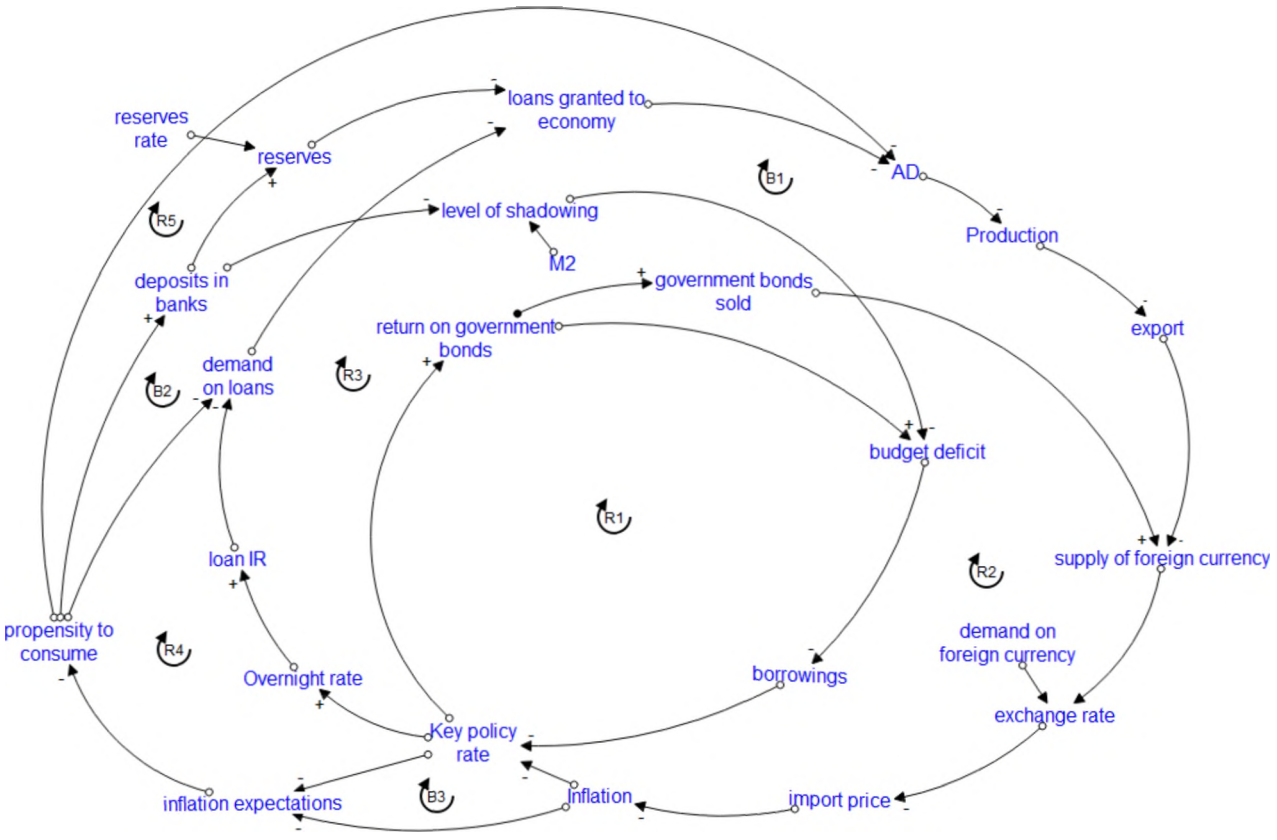

Figure 1. Causal-loop diagram for the system dynamics macroeconomic model

As a starting point, the macroeconomic SD model on the sample from 2016 till 2018 was developed. It consists of eight blocks: interest rates, international reserves, inflation, official and shadow GDP, exchange rate, international trade, and the labor market [3]. Those blocks denote the main economic variables in order to adequately reflect the properties of Ukraine's complex economic system and quantitative estimate the interactions between indicators within a single model complex [5]. Further research steps. The existing macroeconomic model as a base for further research will be improved and redesigned in the following way:

- the sample will be expanded to cover the period from 2005 till now;
- full and comprehensive adequacy check of the model will be made;
- the model will be extended by adding the other blocks, namely fiscal, financial, international in order to reproduce the functioning of the country's economy more accurately;
- the wide range of the scenario analysis will be conducted to discover how country's economy will react to the destabilizing factors

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