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TRANSITION FROM THE FIXED EXCHANGE RATE TO INFLATION TARGETING IN UKRAINE IN CONDITIONS OF MACROECONOMIC INSTABILITY

Price stability provided by an effective and rational monetary policy is the foundation for the successful functioning of the country's economy. By pursuing a balanced and reasonable 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. Due to the crisis that occurred in 2013-

2014, the National Bank decided to switch to inflation targeting (IT), which proved its effectiveness in many countries of the world, including Poland, the Czech Republic, New Zealand, etc. 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 the key ones in passing the change of 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 high volatility of key economic indicators, 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.

The rapid change of the monetary regime induces for arising the main research question: How has the conduct of monetary policy changed during the past 10 years? There are two other secondary questions, which are logical continuation of the main one help to discover more specific details and peculiarities: (a) What were the effects of monetary policy before and after the transition to inflation targeting? (b) How has the instability of the financial crisis, significant level of shadowing and the political/military crisis affected the conduct of monetary policy and its effectiveness?

In order to answer the research questions System Dynamics (SD) model with several sectors is developed to be able to estimate the effects of monetary policy on macroeconomic stabilization quantitatively. The draft of causal-loop diagram of the aggregate version of such model shown on Fig.1 and consists of eight loops: 5 reinforcing and 3 balancing. 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. 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. 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.
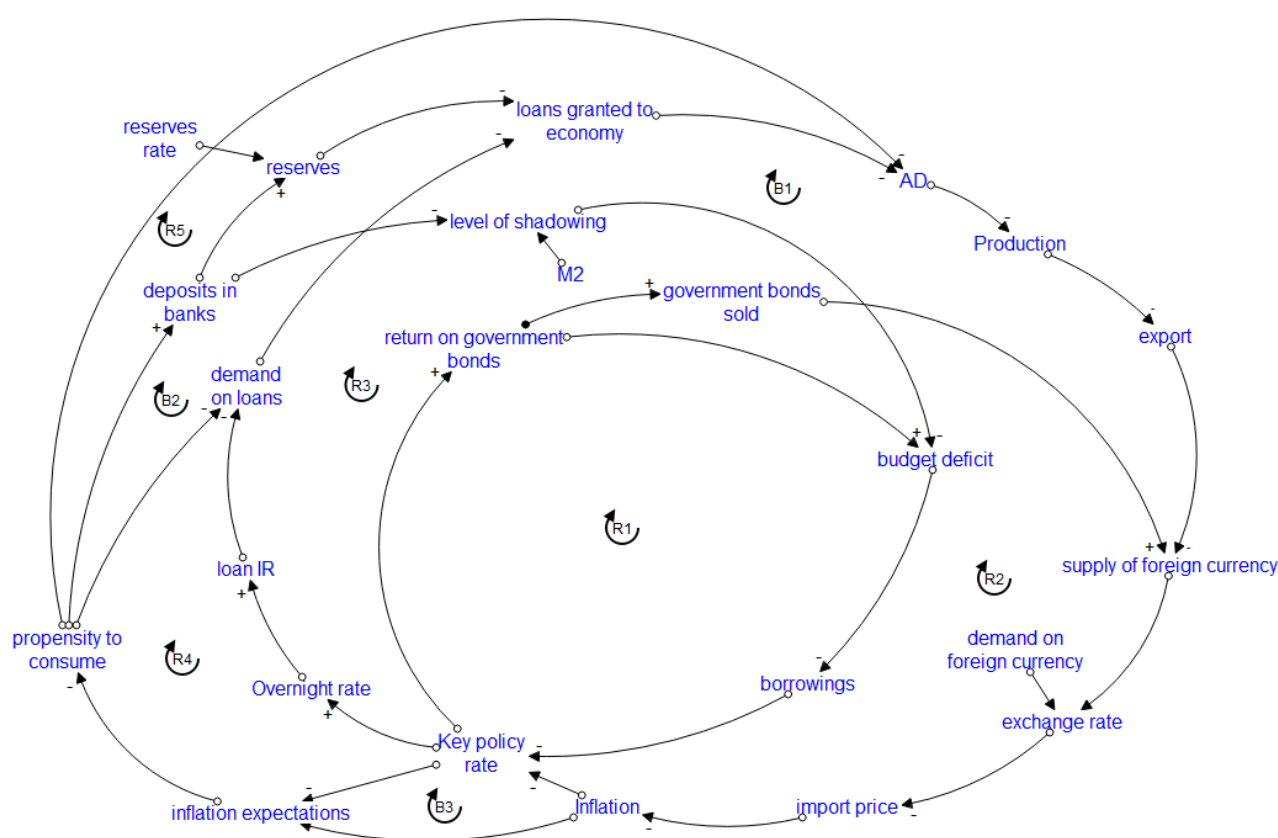

Fig. 1 Causal-loop diagram of the system dynamics (SD) macroeconomic model for estimation the effect of switch to the inflation targeting

For example in terms of loops, R1 shows how change of the key policy rate influences prices of government bonds and budget deficit; R2 extends the previous loop with adding the effect on the supply of foreign currency, exchange rate and inflation; R3 represents the credit transmission channel (key policy rate impacts loan interest rates and further AD, production and inflation); R4 and R5 disclose the

inflation expectations channel (how change of key policy rate affects the propensity to consumption and savings) taking into account level of shadowing; B1 and B2 indicate the influence of reserves rate on the bank's lending ability and its impact on the real sector; B3 describes the reaction of inflation expectations on inflation changes and its effect on demand, production and trade.

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. 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.

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 can 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 similar models will be built for two more countries, one with a developed economy and the other with developing

● the wide range of the scenario analysis will be conducted to discover how country's economy will react to the destabilizing factors

The models and conduction of the literature review is an important starting point to answer the research questions, but it can require further improvements. First of all, an extension of the models with adding other sectors and mechanisms that allows reproducing more accurate the functioning of the country's economy will help to define the efficiency of monetary policy based on overall information about key transmissions. Secondly, a comparison of the results of scenario analysis and macroeconomic model structures for countries with different stages of development

is useful for assessment of the force of shocks action, key peculiarities in national economy and monetary policy conduction.

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МАТЕМАТИЧНА МОДЕЛЬ ФОРМУВАННЯ РЕСУРСНОГО ПОТЕНЦІАЛУ ІПОТЕЧНОГО КРЕДИТУВАННЯ В АГРАРНІЙ СФЕРІ

Найбільшого поширення серед математичних моделей іпотечного кредитування здобули моделі іпотечного кредитування житла. Відомі підходи до математичного моделювання іпотечного кредитування житла дозволяють виокремити лінійні регресійні моделі [1; 2; 3], в яких величина іпотечного кредиту залежить від декількох факторів, нечіткі моделі [4], динамічні моделі, що описуються системами нелінійних диференціальних рівнянь [1]. В процесі прогнозування, як правило, застосовуються лише класичні підходи, які використовують криву тренду з класів найпростіших функцій

Ресурсний потенціал іпотечного кредитування можна розглядати як відкриту складну систему, що включає заставний потенціал, фінансовий потенціал, інвестиційний потенціал, інституційний потенціал та регуляторний потенціал. Складові ресурсного потенціалу іпотечного кредитування відносяться до невимірюваних величин. Разом з тим, їх аналіз показав, що вони