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EVALUATION OF THE EFFECTS OF THE SHOCKS ON MACROECONOMY OF UKRAINE

Over the past decades, countries' integration into the global economy is gaining momentum. International shocks affect all countries without exception, but with varying strength, depending on how much each individual country or region is vulnerable to changes in the external environment(Kireyev & Leonidov, 2015).

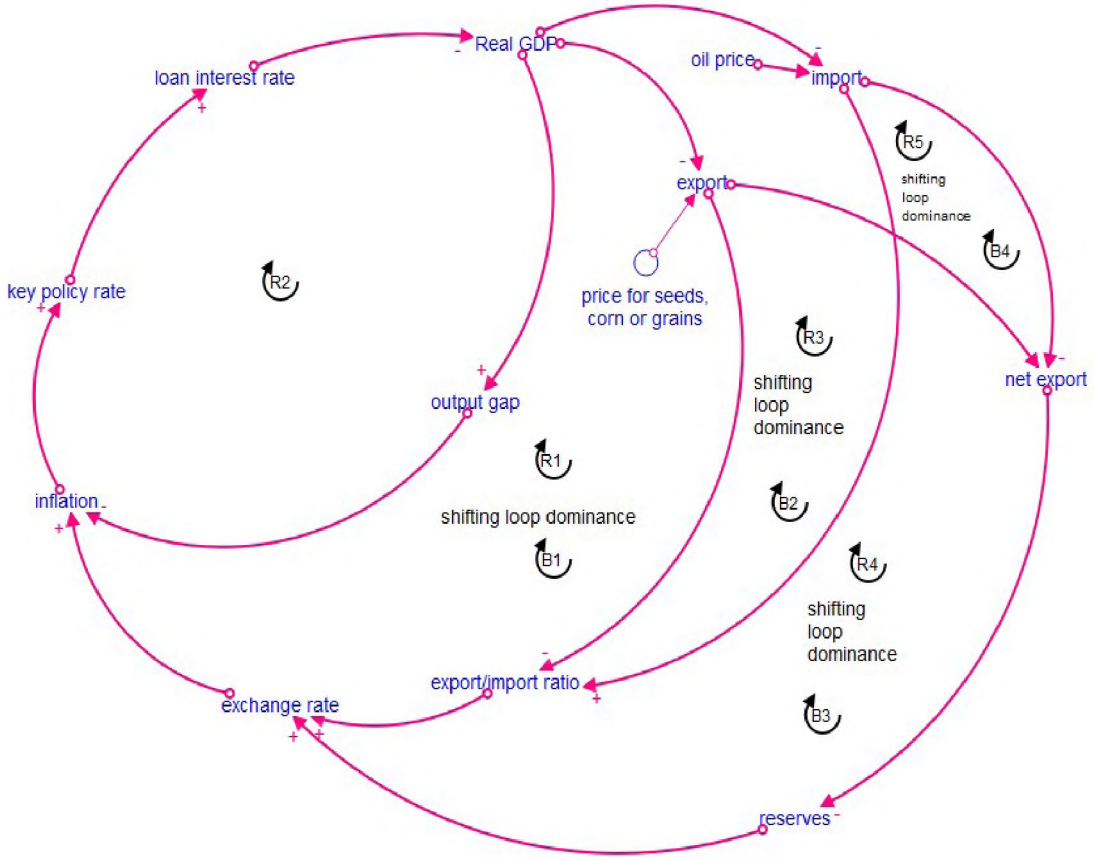
Ukraine is small open economy, what is mean that export and import are large part of GDP. The country depends a lot from trade conditions, because it is really the point what the price for goods and services needed to buy and which one for those which are selling. The prices for Ukraine's goods abroad and for goods Ukraine need to buy have impact not only on GDP level, but also on exchange rate, international reserves, inflation etc.

The purpose of the modeling project is to identify average sensitivity of Ukraine's economy to shocks and how it will destabilize the whole economy. There are a lot of shocks, which can happen, but this research is dedicated to examining of trade shocks: increase of prices for oil(it is relevant for Ukraine, cause this country import oil) and corn, seeds or grains(Ukraine sell it aboard). International shocks faced by an individual country in the region may be amplified though various spillover channels. This emphasizes the importance of a multilateral perspective that considers cross-country linkages in analyzing the response of Ukraine to shocks. In theory there are two main ways of transmission of the shocks: trade and financial channels. Countries are connected by financial relationships and trade linkages (Faryna & Simola, 2018).

The entire model includes lots of macroeconomic indicators in order to show simplified macroeconomy of the country. All the indicators are in constant interaction, because economy is the system where everything should work in one direction and with one purpose. There are five loops in the model(see Graph 1). R1 and B1 are balancing and reinforcing loop which come in force depending on the net export, when its negative, balancing loop is working, when positive – reinforcing

one. The export/import ratio is equal export over import, decreasing of export could bring value of the ratio down, however it will be still more than one and create pressure on exchange rate in side of appreciation, so reinforcing loop will dominate. The opposite situation with declining in export which makes ratio less than one, here balancing loop come into force, exchange rate is depreciating. The same situation with R3, B2 and R5, B4, loop dominance depends from significance of decrease in import or export. R4 and B3 in line with two previous loops shifts depending on value of net export, but after has impact on reserves and only then on exchange rate. If disbalances in trade are in place, central bank could smooth exchange rate fluctuations though buying or selling currency on the money market in order to keep it in certain boundaries(Grui & Lepushynskyi, 2016).

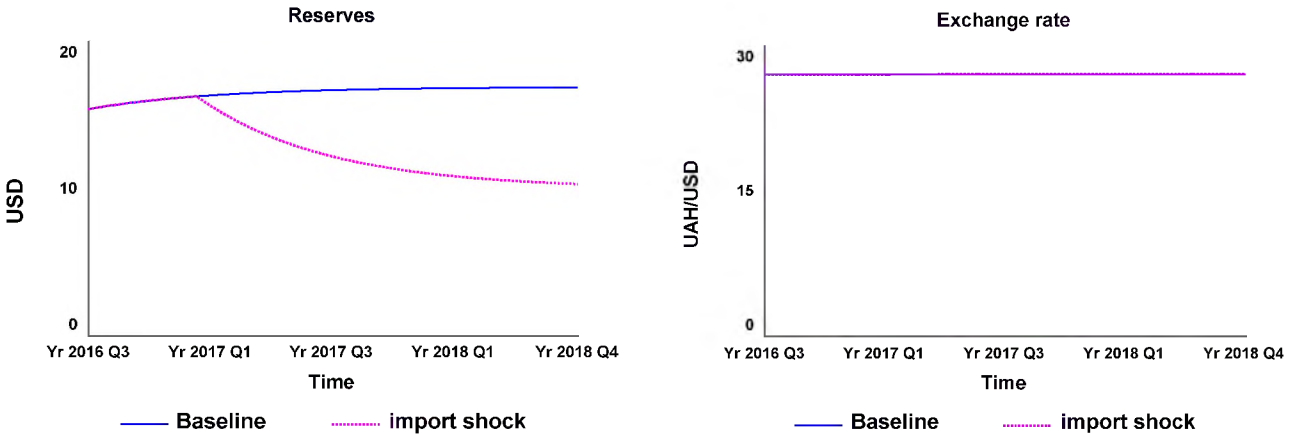
R2 reinforcing feedback loop reproduce the process which drives increasing of inflation. According to transmission mechanism of monetary policy, when inflation raising above its target level, central bank hikes key policy rate to bring it down to the goal, at the same time, interest rates for loans increase as well, since it is become more expansive for commercial banks to get overnight credits from central bank, higher interest rates reduce GDP, because firms could produce less due to the expansive credit money, output gap increases and pressure on inflation from the real sector of economy decreases(Nikolaychuk, 2015).



Graph 1. **Causal loop diagram**

Since, Ukraine big importer of oil, prices for it abroad. Assume that due to increase of oil prices total amount of import jump up on 200 billions USD. The

model should show significant reduction in reserves, because increasing of import with constant export will press on exchange rate in side of its depreciation, but this impact will smooth by selling the reserves by central bank. So, exchange rate should be almost stable, but reserves will go down. Graph 2 confirms mentioned assumption, reserves are decreasing, and exchange rate remains stable.



Graph 2. **Baseline vs import shock**

Since entire project was dedicated to evaluation of effects of shocks, which are random and uncertain, there is no power to take them under control, it just happens and impact on whole economy macroeconomic system. Authorities could only prevent shock or be prepare to overcome circumstances, such as central bank should keep its reserves on adequate level to be ready to react on export/import disbalances. Inflation expectation should be anchored in order to avoid panic and keep inflation on boundaries, because in this occasion people's reaction for price increasing will be less significant.

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