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MACROECONOMIC RESILIENCE UNDER DIFFERENT MONETARY POLICY REGIMES

Problem identification

In 2014-2015 Ukraine has faced several severe shocks. The russo-Ukrainian war has started, Ukrainian Crimea was annexed and there were severe battles in the eastern regions of Ukraine which were invaded by russian military forces. As a result, supply-side inflationary pressures, increase of the sovereign risk premium, depreciation of hryvnia, and sharp decrease in GDP has led to severe macroeconomic instability. Thus, in addition to the existential threat, Ukrainians has faced another problem – the prices have started to increase fast.

In the middle of 2015, the central bank of Ukraine switched its monetary policy regime from the fixation of the exchange rate to inflation-targeting [1] with the aim of slowing down inflation to a moderate and predictable range of volatility. The idea was to use the interest rate changes to affect inflation through a process called the monetary transmission mechanism.

As can be seen from Figure 1, the actual inflation and inflation expectations were significantly reduced between 2016 and 2020, but it is unclear to what extent the adopted policy is responsible for the observed behavior of key performance indicators.

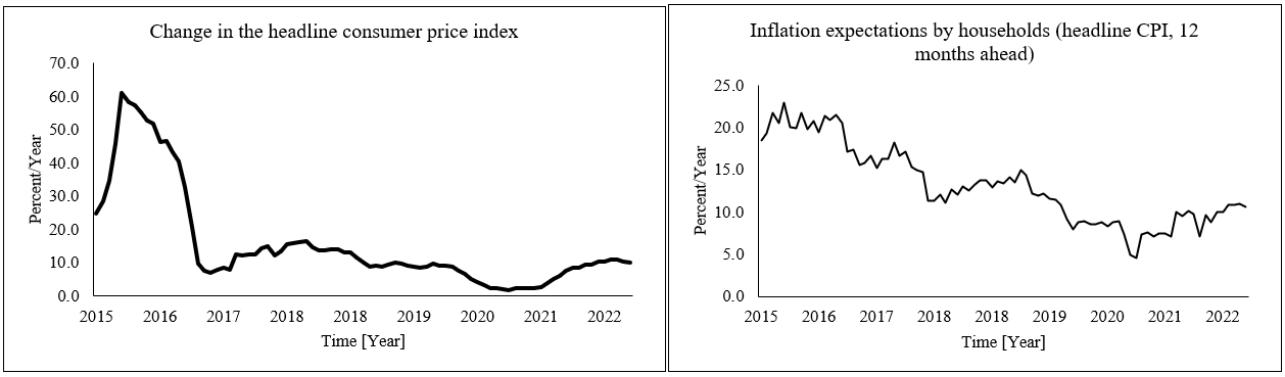

Figure 1. Reference mode of behavior of key performance indicators
Source: National bank of Ukraine [2]

The goals of this research are as follows:

1. To develop an explanatory model of the national economy, which would include 3 channels of the monetary transmission mechanism in an explicit form.
2. To assess whether the adopted policy of inflation targeting was useful in mitigating inflation.

Dynamic Hypothesis

We assume that the actual causal relationships in a national economy are correctly explained by modern macroeconomic literature. That is why the design of the causal-loop diagram and model follows the design of "a semi-structural, forward-looking New-Keynesian model of a small open economy" that is used by the National Bank of Ukraine for medium-term forecasting of key macroeconomic variables [3]. Also, it should be mentioned that this research is inspired by the work of David Wheat [4] on modeling macroeconomics with system dynamics tools.

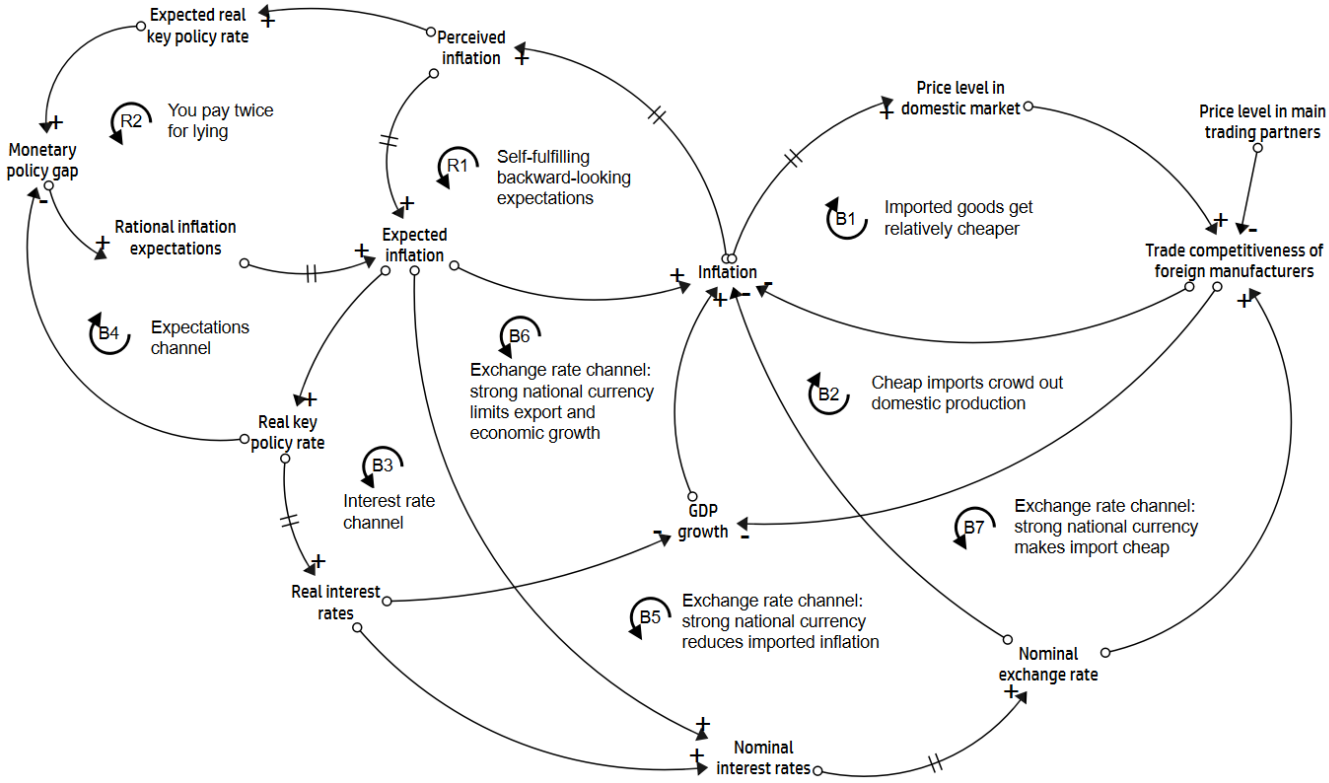

Figure 2. Causal Loop Diagram for key feedback mechanisms
Source: developed by the author in Stella Architect software

The most important relationships are summarized in the form of a causal loop diagram (Figure 2). R1 represents the main source of instability in an economy that has suffered a temporary exogenous inflationary shock, since such a shock has led to an increase in inflation expectations, and such expectations are quite persistent in nature. B1 and B2 represent the processes responsible for the stabilization of domestic prices due to the influence of international flows of goods and services.

Other loops are added to represent the effect of monetary transmission mechanism. A good overview of the channels of the MTM is given by Mishkin (1995) [5]. B3 represent the interest rate channel which is usually the most important in advanced economies.

B4 and R2 cover the processes related to the expectations channel. It requires two loops as its effectiveness highly depends on the quality of communication policy and the consistency of monetary policy: if the population and the central bank share

the same understanding of the monetary policy (so that the population can understand the underlying logic of the decisions of the central bank) and at the same time the central bank is acting accordingly to its proclaimed vows, B4 will assist in returning inflation expectations to the inflation target. But if there are some issues either with the perceived logic of the central bank's actions or with the consistency of adherence to the principles of inflation-targeting, the population will not be reassured by the actions of the central bank, and inflation expectations will increase (R2).

B5, B6, and B7 represent the exchange rate channel of the monetary transmission mechanism. All these loops are dependent on the fluctuations in exchange rate due to international flows of capital.

Results

The model was used under 3 scenarios: pure inflation-targeting; fixed exchange rate monetary policy regime with no inflation-targeting; inflation-targeting with fixed exchange rate. Figure 3 summarizes the results of simulations.

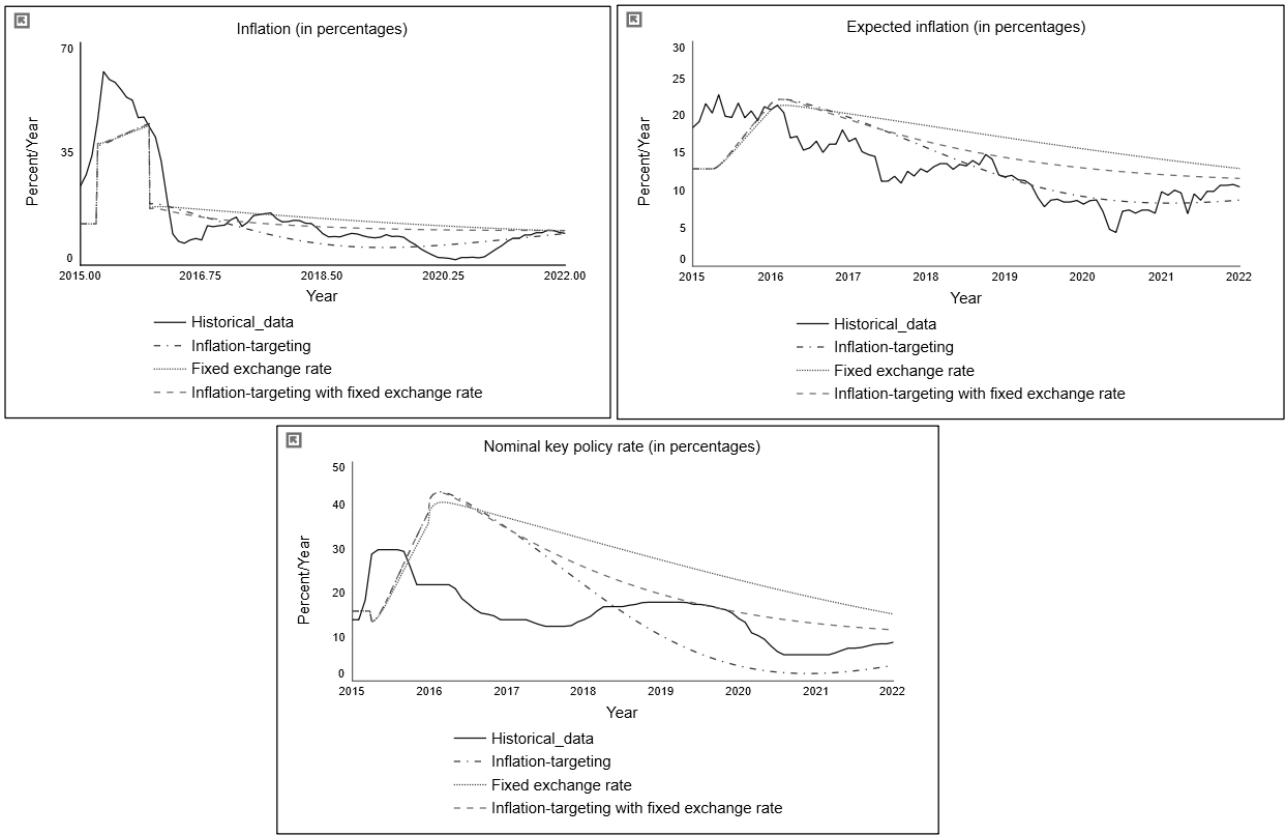

Figure 3. Simulation results for key performance indicators and the key policy rate
Source: developed by the author in Stella Architect software

As we can see, under the monetary policy regime of inflation-targeting inflation and inflation expectations converge to their respective normal ranges fastest and this is consistent with the historical development of these variables. Also, we can see that it would have taken longer for fixed exchange rate monetary policy regime to slow down inflation. Interestingly, the combination of these two policy regimes would also be less efficient in its effect on inflation and inflation expectations. This

happens because fixed exchange rate makes the exchange rate channel of the transmission mechanism inactive.

Regarding the overall role of inflation-targeting in its effect on inflation and inflation expectations, it has been found that the exchange rate channel is the most influential in the monetary transmission mechanism. This is in line with the results of Zholud et al (2019) [6]. At the same time, the interest rate channel still has a relatively low effect on the economy.

Conclusion

So, does monetary policy matter? Yes, it does, but primarily in the short and medium term as it helps to decelerate inflation faster. But in the long run, it makes more sense to remove the barriers to the international flows of capital, goods, and services, so that the inflation rates in domestic and foreign economies will converge with no additional obstacles. That is also the reason why the policy of fixed exchange rate is not very helpful in inflation mitigation.

References

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