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Central bank policy under significant balance-of-payment shocks and structural shifts ☆

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Abstract

In this paper, we analyze a number of monetary and FX policy alternatives using the model of a small open oil-exporting economy hit by severe balance-of-payment shocks, such as those that simultaneously affected the Russian economy in 2014–2015. For our purposes, we modify Romer's (2013) IS-MP general equilibrium model by adding a structure similar to the Russian economy (tradables and oil vs. non-tradables). In the model, we consider an optimal policy mix that includes a floating exchange rate, FX liquidity provision by a central bank and temporary tightening of monetary policy. The flexible exchange rate works as a shock absorber, helping restore aggregate demand and domestic production. If inflation expectations are not anchored, contractionary monetary policy helps to stabilize them. Financial stability risks are addressed by lending FX liquidity to the banking sector.

JEL: E12, E41, E52, E58, E63.
Keywords: monetary policy, terms-of-trade shock, Russian economy, IS-MP model.

1. Introduction

Over the past 2 to 2.5 years, the Russian economy has experienced several balance of payment shocks. These are related to the onset of the Fed monetary policy normalization, geopolitical tension followed by the sanctions which led

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to capital outflow, as well as the decline in oil prices and increased volatility. This drastically different external environment has brought about substantial changes in the Russian economy that have been dubbed "new reality". There are still heated discussions underway regarding the most appropriate macroeconomic policy that would enable the economy to adapt to the situation and to put it on the path of sustainable growth under the new conditions, as soon as possible.

The range of policy measures being proposed is quite broad, while theoretical justification for many of them is not quite clear. To narrow this gap in policy discussions, this paper attempts to deal with the issue from the standpoint of standard macroeconomic theory. We demonstrate how standard basic macroeconomic models should be adapted and used to find the most appropriate macroeconomic policy for Russia. This paper addresses both monetary and fiscal policies and relies upon basic macroeconomic models.

The first part defines the macroeconomic variables describing the long-run equilibrium in the model: potential GDP, the long-run real interest rate, and a central bank's inflation target. It also defines indicators that reflect the structure of the economy (tradable goods and commodities vs. non-tradable goods) and the variables responsible for structural shifts in the economy in the aftermath of changes in oil prices (the real exchange rate). In our description of a small open economy we follow the textbook by Vegh (2013).

In the second part of the paper, we look into the short-run equilibrium in the goods and money markets (IS-MP model), following Romer (2013), measuring the equilibrium real interest rate and the equilibrium GDP output, the values of which may differ in the short run and in the long run. In parallel, we analyze the foreign exchange market and define the equilibrium real and nominal foreign exchange rates, putting the balance of payments in equilibrium. To close the model, we define inflation and inflation expectations and introduce a tight link between inflation and aggregate output. The model is helpful in explaining correlation between inflation and aggregate demand. Finally, we describe the core elements of the government budget and present the concept of a long-run (equilibrium) budget deficit and national debt.

With the modelling tool now at our disposal, in Part 3 we analyze how the Russian economy reacted to the 2014 balance of payment shocks and explore the most appropriate monetary policy response to the oil shock, taking into account the projected medium-term fiscal policy.

1. Theoretical description of the economy

1.1. Long-run equilibrium and the structure of the economy

1.1.1. Economic equilibrium

Put in the simplest way, an economy is the material balance between production and demand (desired spending). In equilibrium, physical production must equal the consumption of the goods produced, i.e., GDP produced (plus imports) must be equal to the desired spending. The main types of spending in an open economy are household and government consumption, business in-