

Volatility and Growth (Волатильность и рост)  
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*Motivation*

Macroeconomic literature has traditionally regarded short-run volatility of different variables and economic growth as two distinct topics with no causal link between the two. Thus, macroeconomic curriculum is generally divided into growth theory and business cycle theory.

The growth theory literature addresses the question of why some countries grow fast and some grow slowly. The traditional answer, within the exogenous growth theory framework, had to do with technological progress in the long run and capital accumulation in the medium run. This literature predicted conditional convergence of countries to different growth paths with different levels of income depending on certain characteristics of these countries. The endogenous growth theory, which became very popular in 1980s thanks to pioneering work of Paul Romer, has posed the question of what determines the technological progress. Later on, further research started to study different constraints associated, for example, with politics and institutions (see Acemoglu, Johnson, and Robinson (2005)), to answer the question of why different countries converge to different steady states and why capital accumulation is observed in some countries but not in others. However, most of this literature is not concerned with the issues of short-run volatility; instead, attention is paid to structural characteristics of the economy which persist for a long time.

The short run fluctuations, instead, have been studied in the business cycle literature. Here, alternative theories propose explanations which have to do with exogenous fluctuations in productivity, multiple equilibria, or incomplete nominal adjustment in combination with demand shocks. All of these theories study fluctuations for their own sake, as fluctuations around a trend, and do not pose the question of how these fluctuations affect the slope of this trend. Even when fluctuations and trend are regarded as part of the same exogenous process, the causal relationship is not a matter of special interest. As a result, research on stabilization policy, such as monetary policy within the new Keynesian paradigm (Clarida, Gali, Gertler, 1999) poses the question of how the government can reduce deviations from an exogenous trend in the best way. The objective function of the government or the central bank, in such models, is derived from the utility function and has to do primarily with welfare gains from consumption smoothing (see Woodford (2003), Ch.6).

This detachment of volatility from growth has recently caused discontent among some macroeconomists (see, for example, Aghion and Banerjee (2005)). The new hypothesis is that stabilization is necessary not only for its own sake, but also for the sake of

enhancing long-term growth prospects of a country. In a number of papers, Philippe Aghion and co-authors have demonstrated empirically how volatility in income and real exchange rates can hamper long-term growth, especially in countries with poorly developed financial markets. Besides empirical contributions, they sketched models, which demonstrate how these empirical observations can fit into endogenous theory framework.

This work on linking volatility and growth is clearly at the very early stage, and has to be studied to a much greater depth. What is clear is that the standard objective function of the central bank, as derived in Woodford, no longer applies and need to be replaced. Many conclusions about optimal monetary policy need to be revisited. At the same time, no unified framework has been developed for such analysis. Many questions remain unanswered, especially for developing countries. A long-standing question of optimal exchange rate regimes for such countries, which generally has been addressed within some sort of IS-LM framework, re-appears in a new light.

#### *Relation to Russia and similar developing countries*

Although these questions are rather general and need to be applied to all of macroeconomic theory, many more specific questions can be asked regarding the Russian situation. The distinctive characteristic of the Russian economy is its heavy dependence on the international price of oil, which poses particular new questions for the economic policy in our countries. Many of these questions have been studied by us already in previous research projects at the New Economic School since 1992, but many remain unanswered. Thus, the Bank of Russia has been paying a great deal of attention to the behavior of the exchange rates, probably more attention than is prescribed by many standard New Keynesian models. This problem is actually more general and has been addressed in the literature (Calvo and Reinhart, 2002). However, in the framework of the dependency on oil exports revenues, which are probably the main driving force behind the fluctuations in the real exchange rate in Russia, additional hypotheses can be explored. An additional question concerns the stabilization fund, whose primary goal is to protect the government budget from a fall in the price of oil. But the fund also reduces volatility, and to the extent that the manufacturing sector observes this reduction in volatility, the fund can stimulate growth in the long run.

Likewise, the interplay between macroeconomic volatility and other variables can be considered. Thus, macroeconomic stabilization was initially named as the primary first goal of the market reforms, which started in early 1990s. Institution building was considered second, in the sense that demand for institutions can only appear in a stable macroeconomic environment. This idea has been challenged later in the transition literature (Svejnar 2002), but has not been considered in a proper macroeconomic framework. Can there be a causal link between macroeconomic volatility and institution building, such as protection of property right?

An interesting question that arises for developing countries is whether the term “overheated economy” can apply to developing countries. In the press, one can frequently

read that Chinese economy is overheated. However, we usually say such things only about an economy that operates above potential. A developing economy, on the other hand, can easily increase its potential through adoption of new technology or building extra capital. Both of these things will push the economy closer to world technological frontier without extra inflation or other costs. Can such an economy grow “too fast,” for example, in the sense that rapid growth produces financial market distortions? If “overheating” means that economy operates above potential defined by current level of capital and technology, is the cost of such overheating the same as for a developed country?

Finally, financial crises, such as the one that took place in Russia in 1998, are big part of the volatility problem. Are such crises the same thing as the general business cycle, and if not, do they imply different things for long-term growth. We have seen that many countries, including Russia, recovered rapidly following the crises of the 1990s, but does that mean that such crises are not hampering growth? Or are such crises just an inevitable companion of any rapid development?

#### *Specific suggestions for the master thesis topics*

The title of the research project, “Volatility and Growth” is both very general and very specific. It can be interpreted as a project that spans all of macroeconomics, because short run fluctuations and long-term growth are the two big parts of macroeconomic science. It can also be interpreted, as above, as a specific project aimed at searching for a causal link between these two topics.

We want to remain flexible and allow students to interpret the title as they see fit. Thus, we will welcome any topic in macroeconomics for a thesis, as long as this topic holds scientific or applied interest.

More specifically, however, we encourage research ideas within the framework outlined above. Possible topics include both theoretical and empirical questions, and some ideas are listed below:

#### Theoretical questions:

- 1) What does endogenous growth theory tell us about the objective functions of a central bank?

This question can generate a number of theoretical research ideas, for example:

- 1.1) The basic question is to re-write a standard inflation-output choice function for a closed economy.
- 1.2) Second, one can look at an open economy and see how choice between inflation and exchange rate stabilization can help induce long-term growth.

## 2) Optimal monetary policy for growth

Here, instead of searching for an objective function, one can directly estimate the optimal policy rule from the sense of maximizing the growth rate, under different conditions, such as:

- 2.1) Dependency on natural resource exports
- 2.2) High liability dollarization of the economy
- 2.3) Poorly developed financial markets
- 2.4) Etc.

## 3) Macroeconomic stabilization: a prerequisite for institution building?

This question relates to the recent history of Russia and is meant to study the following things:

- 3.1) Can demand for proper protection of property rights be generated in an unstable macroeconomic environment?

A relevant topic that has to do with the current Russian situation is the role of stabilization fund.

- 3.2) What are the possible ways in which the stabilization fund can enhance long-run growth via reduction of political risk?
- 3.3) Can stabilization fund enhance long-run growth via reduction in economic fluctuations in presence of learning-by-doing in manufacturing?

## 4) Financial crises and growth

Here, causal relationship can run several ways, hence the topics:

- 4.1) Are financial crisis an inevitable part of rapid growth? What are the conditions, under which fast growth creates distortions in credit markets?
- 4.2) Do financial crises slow down long-run growth? Empirical and theoretical investigation.

## 5) Overheating in a developing economy: is there such a thing and what are the drawbacks?

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