Proposed Topic:
Exchange Rate Pass-through effect in Mongolia: Small Open Economy DSGE model

Topic Characteristics:

In open economies, exchange rate fluctuations affect the behavior of inflation. This makes the exchange rate pass-through (defined as the effect of exchange rate changes on domestic inflation) an important consideration with respect to monetary policy. Appropriate exchange rate policy may play a vital role in accommodating shocks and smoothing the business cycle.

The goal of this thesis is to examine the exchange rate pass-through effect on the inflation over the business cycles. The analysis is pursued within the Small Open Economy New Keynesian DSGE model. In particular, I will utilize existing literature and apply the recently developed methodology to the case of Mongolia.

Mongolia represents about 0.01% of world GDP. Small impact on world economy places Mongolia into the class of small open economies (Dutu, 2012). Mongolian economy is very much dependent on other countries, especially on China absorbing 90% of Mongolian exports. The 80% of Mongolian exports are made of mineral commodities such as coal, gold and copper. Their prices are very volatile in the world market. However, Mongolia import almost all goods from foreign countries, mainly from China and Russia. Therefore, exchange rate is highly volatile in Mongolia and its fluctuations make the economy more vulnerable.

In recent years, the exchange rate pass-through have been studied extensively using small open economy DSGE model framework (Etsuro Shioji & Vu Tuan Khai (2009), Charles N.O. Mordi, Malin Adolfson and Stefan Laséen, etc (2007)). Their studies showed incomplete pass-
through for the case of Japan, Nigeria, and OECD countries such as Norway. Moreover, as results of some other studies, the exchange rate is shock absorber for some countries while it is a source of shock for some cases.

The literature focused on Mongolia is scarce. In case of Mongolia there has been one study Gan-Ochir, (2011) represents one of the few studies. They focus on the role of the exchange rate in Mongolian economy using a theoretical framework of a stochastic open macro economy model based on the work of Bjornland (2004) which is estimated using SVAR. This model is simply extended the Keynesian stochastic open macro economy model developed by Blanchard and Quah (1989). This study shows the exchange rate acts as a shock absorber rather than a source of shocks in economy. The implication policy of his study is that flexible exchange rate is more appropriate for Mongolia.

Based on these findings, I argue that the exchange rate is source of shocks and the fixed exchange rate regime might be more appropriate for the Mongolian economy. Corsetti and Pesenti (2004) find that an inward-looking policy of domestic price stabilization is not optimal when firms’ markups are exposed to currency fluctuations. The degree of pass-through and exchange rate exposure in domestic and foreign markets emerges as a key parameter in the design of optimal monetary rules, as well as in the welfare analysis of alternative monetary arrangements. Holub (2002) implies in his study that the fixed exchange rate policy might be more appropriate policy for emerging economies which are interrelated with its trading partners and central banks have low credibility. Mongolia is one case of these emerging economies.

To answer above stated question I will use small open economy DSGE model. The small open economy DSGE model is derived from microfoundations thus provides more reliable analytical tool.

There are so far three small-scale, calibrated small open economy DSGE models and one large-scale small open economy Bayesian estimated DSGE model which have been developed in Mongolia.

The first small model developed at Central bank of Mongolia was primarily used for studying
the monetary transmission mechanism, but not DSGE model.

The second small model developed by Altantsetseg and Bayarmaa (2011) is small open economy inflation targeting DSGE model based on paper by Cladio Soto et al. (2008).

The third small model developed by Batsukh and Avralt-Od (2012) is small open economy DSGE model with natural resource sector based on papers of Berg et al. (2009, 2010, 2011). This model focused on so-called the Dutch disease.

The large-scale Bayesian estimated DSGE model developed by Richard Dutu (2012) at World Bank based on the papers by Christiano, Eichenbaum and Evans (2005), as well as Adolfson et al. (2007) as choosing benchmark models. The author aimed to conduct risk analysis regarding to the challenges and opportunities of several alternative growth paths and forecast public sector contingent liabilities associated with Mongolian macroeconomic and investment scenarios.

I will develop small open economy DSGE model augmented by exchange rate pass-through effect and country specific ingredients. To goal is to capture pass-through effect to the inflation and its contribution to the business cycles, and to suggest the optimal exchange rate policy.

The results of this thesis might contribute to the literature on this topic in Mongolia.

Hypotheses:

1. Hypothesis #1: is there a complete exchange rate pass-through in Mongolian economy?
2. Hypothesis #2: is the exchange rate a source of shock which can fluctuate the economy and contribute to the business cycles?
3. Hypothesis #3: is the fixed exchange rate policy more appropriate policy for Mongolian economy?

Methodology:

In order to test my hypothesis and accomplish the aim of the thesis, I will study as follows:

1) I will review literature on theoretical and empirical studies related to the exchange rate pass-through effect
2) I will amend the small open economy DSGE model introducing exchange rate pass-through effect based on papers which were previously published in Mongolia and other literatures such as papers by Jordi Gali and Tommaso Monacelli (2005), and Corsetti and Pesenti (2004) taking account to unique features in Mongolian economy.

3) I will solve the modified model, calibrate and simulate the model for specified form and alternative monetary regimes, and compare the results to the real data in Mongolia. As a result, I will suggest the optimal exchange rate policy.

I will use Mongolian data for main macroeconomic variables such as GDP, inflation, interest rate, exchange rate, real wages, imports, and M1 money supply in this thesis. The small open economy DSGE model is based on New Keynesian framework. Main feature of this model framework is to use the Calvo-type staggered price setting which allows for richer dynamic effects of monetary policy. DSGE model is nowadays standard powerful and effective analytical tool for central banks.

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Core Bibliography:


