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Capital control and exchange rate volatility

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ABSTRACT

The study offers one conceptual and theoretical framework for evaluating the economic effects of a trading tax on foreign exchange transactions. Taxes and the price stickiness mechanism are taken into account in the model. When prices are flexible, full monetary neutrality can be obtained even in the short-term. Intuitively, taxes on foreign exchange transactions discourage speculation by rising currency trading costs, and, thus, increase the stability of the exchange rate. Finally, the results show that not only the exchange rate but consumption, investment and employment will become less volatile by imposing trading taxes on foreign exchange transactions.

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1. Introduction

The debate on capital controls has been argued by a number of economists in the aftermath of the currency crises of Mexico in 1995, East Asia in 1997, Russia in 1998, Brazil in 1999, and Argentina in 2001. The general view of such crises is that they are caused by some fundamental economic weakness, such as excessive external borrowing, over-investment and current account deficits. However, a significant part of the problem is that there is no explicit regulation governing excessive international capital movements in these economies. Controls on capital flows are expected to protect

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countries, especially in developing economies, from speculative attacks.[2] In fact, using capital mobility as a policy instrument in order to reduce macroeconomic volatility is not new. Date back to Tobin (1974) and Eichengreen, Tobin, and Wyplosz (1995), for example, argue that a tax on foreign exchange (henceforth, FX) transactions might reduce speculative capital flows in the international currency market.

As a consequence, a number of studies has analyzed and evaluated the effects of capital controls on short-term and long-term inflows (see, for example, Forbes, 2007). In the mid-1990s, Eichengreen and Wyplosz (1993) and Eichengreen et al. (1995), for instance, discuss that taxes would discourage short-run speculators from betting against several major currencies if they were implemented by all countries at the same time. Recently, Binici, Hutchison, and Schindler (2010) find that capital controls may affect the volume and composition of capital flows by using 74 countries' data. On the contrary, Glick and Hutchison (2011) investigate the effectiveness of capital control from currency crises by a panel data set comprised of 69 emerging/developing economies. Glick and Hutchison conclude that capital controls have not effectively insulated economies from currency crises at any time. Additionally, some studies, such as Aliber, Chowdhry, and Yan (2003), Valdés-Prieto and Soto (1998), and Edwards and Rigobon (2009), argue that a tightening of capital control would increase the volatility of exchange rate. To utilize a vector autoregressive analysis, De Gregorio, Edwards, and Valdes (1998) confirm that a tax on capital movements, indeed, discourage Chile's inflows. Edwards (1999) captures the relationship between stock market variability and capital flows. His investigation shows that Chile's capital controls policy helped reduce stock market instability.

Using micro-level data on capital flows in Brazil, Jinjarak, Noy, and Zheng (2013) find no evidence that any tightening of controls is effective in reducing inflows. Of interest, Hanke, Huber, Kirchler, and Sutter (2010) utilize an experimental analysis to explore a Tobin tax on FX markets. They confirm that a tax on FX market reduces short-term speculation. Korinek (2011) builds a simple model to analyze the capital control and find prudential capital controls can induce agents to internalize their externalities and thereby increase macro stability and welfare. One recent survey paper on capital flow by Magud et al. (2011) concludes that the empirical studies on the impacts of capital controls is still debated. In addition, most existing studies on capital controls are focusing on empirical evidence. Different from those existing works, this study offers a theoretical framework based on a dynamic general equilibrium model setup for analyzing the relationship between capital control and macroeconomic stability. More specifically, the dynamic model with micro-foundation presented assumes a uniform, internationally levied tax payable on FX transactions and analyze the tax impacts on this economy.[3]

The study is based on microfoundations in which consumers maximize utility from three alternative sources, i.e., consumption, real balances and leisure. Both *un*anticipated monetary and technological disturbances at home and abroad introduce uncertainty into this model. Of important, this work explicitly considers a trading tax on FX transactions in the money supply process. In a flexible price economy, country specific productivity and demand disturbances influence the terms of trade, but monetary innovation has no effect on any real variables. That is, monetary neutrality does hold in this model, when prices are entirely flexible. Furthermore, imperfectly competitive producers are then assumed to choose optimal prices before realizing money disturbances, and prices can be adjusted completely after a period. With sticky prices, the exchange rate must fluctuate to achieve a change in terms of trade. Consequently, this paper extends the standard dynamic general equilibrium framework developed by Devereux (2004) and Chang, Chang, and Shieh (2014).

In this framework, a tax on FX transactions, extending from Devereux and Engel (2003), would be effective in stabilizing nominal exchange rate variability.[4] The model also shows that increasing the tax can be effective in protecting a country against economic instability. Specifically, the economy will remain more stable in terms of consumption, investment and employment. However, when monetary

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[2] Magud, Reinhart, and Rogoff (2011) summarize some of the key reasons why capital controls, i.e., four fears: fear of appreciation, fear of hot money, fear of large inflows and fear of loss of monetary autonomy.

[3] The basic idea of trading tax on the FX markets is similar to the an *unremunerated reserve requirement* (hereafter, URR) adopted by Chile in the 1990s. For more details, see Gallego, Hernández, and Schmidt-Hebbel (2003).

[4] Nominal or real exchange rate volatility always attract much attention in empiric or theory (see, for example, Bailliu, Dib, Kano, & Schembri, 2014; Chao, Hu, Lai, Tai, & Wang, 2013).

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