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The fiscal multiplier and spillover in a global liquidity trap

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ABSTRACT

We consider the fiscal multiplier and spillover—the extent to which one country's government expenditure increases production at home and also in another foreign country, when the two countries are caught simultaneously in a liquidity trap. Using a standard new open economy macroeconomics (NOEM) model, we show that the fiscal multiplier and spillover are contrary to textbook economics. For the country where government expenditure takes place, the fiscal multiplier exceeds one, the currency depreciates, and the terms of trade worsen. The fiscal spillover is negative if the intertemporal elasticity of substitution in consumption is less than one, and positive if it is greater than one. Incomplete stabilization of marginal costs due to the existence of the zero lower bound is critical in understanding the effects of fiscal policy in open economies. These results remain unchanged even if we incorporate incomplete markets or endogenous capital into the model, but local currency pricing yields positive fiscal spillover irrespective of the size of the intertemporal elasticity of substitution.

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1. Introduction

The liquidity trap has become an issue of global concern. As shown in Fig. 1, the economic downturn following the financial turmoil that first began to emerge in 2007 has resulted in monetary policy being constrained at the zero lower bound on nominal interest rates simultaneously in a number of countries, including Japan, the United Kingdom, and the United States. Such a situation is coined by Fujiwara et al. (2011) and Jeanne (2009) "the global liquidity trap".[1] In order to free itself from this trap, many countries currently aim to stimulate aggregate demand and production via fiscal expansion.

In this paper, we investigate theoretically the effects of fiscal policy when two countries are caught simultaneously in a liquidity trap, and compare the results with that of normal circumstances. Using the standard new open economy macroeconomics (NOEM) model, a two-country sticky price model, we analyze the fiscal multiplier—the extent to which one country's government expenditure increases production in that country—and the fiscal spillover—the extent to which this government's expenditure boosts production in another country. We examine whether fiscal expansion yields a beggar-thy-neighbor situation.

Depending on interest rate environments, fiscal expansion yields differing outcomes. According to textbook economics, fiscal expansion under flexible exchange rates is thought to be ineffective (Dornbusch et al., 2008). In the Mundell–Fleming

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[1] Jeanne (2009) illustrates the mechanism by which an adverse shock in one country pushes the world economy into the global liquidity trap. On the other hand, Fujiwara et al. (2011) investigate the optimal monetary policy under commitment under given liquidity trap.

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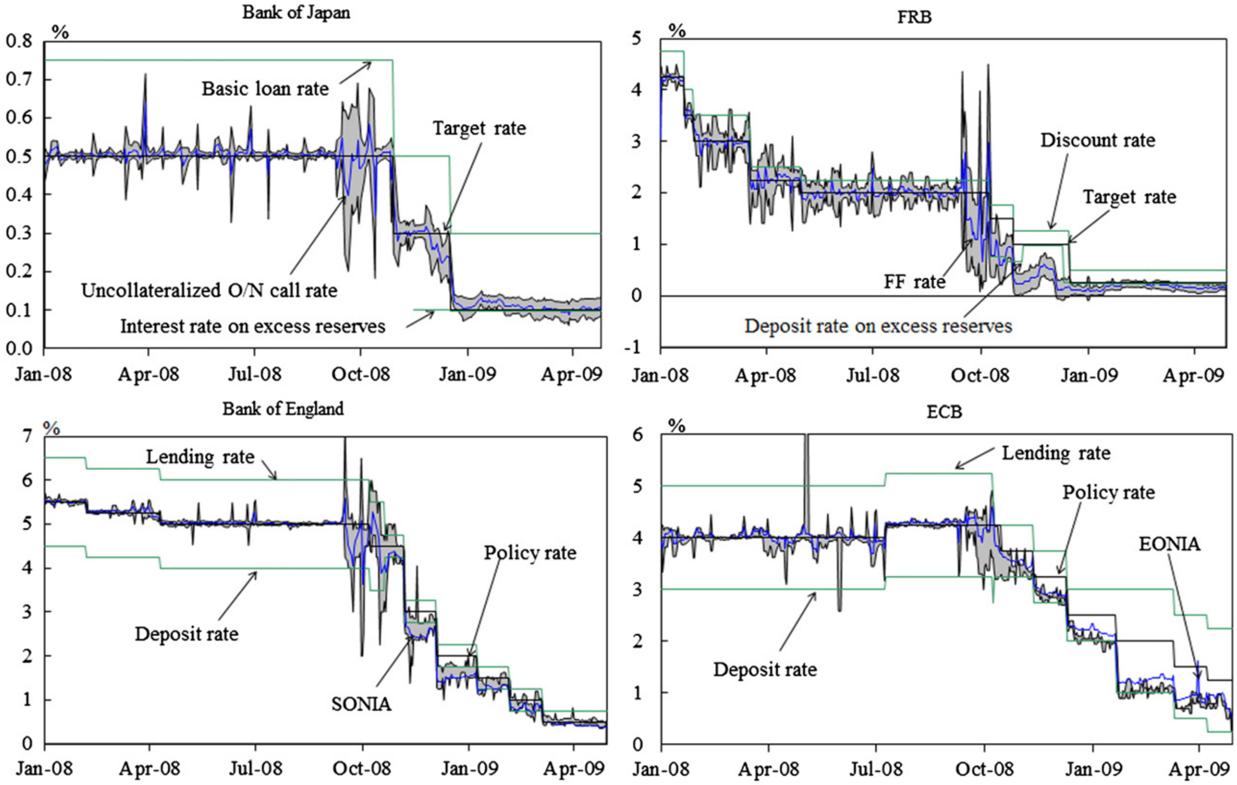

Fig. 1. Global liquidity trap.

model (Mundell, 1967), where the economy is characterized by flexible exchange rates, fixed domestic prices, and perfect capital mobility, fiscal expansion creates upward pressure on interest rates in the home country, and subsequently, the exchange rate appreciates. This offsets the increase in demand for domestically produced goods by crowding out exports. In the NOEM model with producer currency pricing, Clarida et al. (2002) and Benigno and Benigno (2003, 2006) show that the optimal monetary policy aims for price stability. When the central banks follow optimal monetary policy, as will be explained in detail below, domestic interest rates are raised after an increase in the price of domestically produced goods resulting from a positive government shock. The nominal exchange rate appreciates and the terms of trade improve for the domestic country. This induces production switching from domestic to foreign country, and consequently, the fiscal multiplier becomes less than one. The conventional wisdom of ineffective fiscal policy can be reversed in the liquidity trap. This is because in a liquidity trap, nominal interest rates are kept low despite fiscal expansion and consequently the low interest rates prevent the exchange rate from appreciating. Economic activity in the home country is thus stimulated rather than stifled.[2]

Using a standard two-country sticky price, namely the NOEM model, we demonstrate that the size of multipliers and the sign (positive or negative) associated with the spillover in the global liquidity trap are contrary to those predicted in the Mundell–Fleming model or in the NOEM model with optimal monetary policy. In the global liquidity trap, the fiscal multiplier exceeds one. If the intertemporal elasticity of substitution in consumption is less than one, then the fiscal spillover is negative and positive if that is greater than one.

Incomplete stabilization of marginal costs due to the existence of the zero lower bound is critical in understanding the effects of fiscal policy in open economies. As a result of this failure to completely stabilize marginal costs, government spending in the home country raises the marginal costs of domestically produced goods, which in turn increases expected inflation rates and decreases real interest rates. Intertemporal optimization causes consumption to increase, so that the

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[2] The mechanism in the liquidity trap is somewhat similar to when monetary policy does not completely stabilize but instead accommodates the distortions resulting from a government spending shock, as examined by Obstefld and Rogoff (1995). In that case, monetary policy, namely money supply, is assumed to be constant. Relatively lowered domestic consumption due to a positive government shock yields downward pressure on money demand in the home country. To keep money supply constant, a nominal interest rate falls, resulting in the depreciation of the nominal exchange rate and the deterioration of the terms of trade for the domestic country. Consequently, the fiscal multiplier becomes larger than unity. In both cases, the key for the higher multilier is that marginal costs are not completely stabilized, which we call incomplete stabilization of marginal costs.

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