

(Box 1) Effects of a Policy Mix

The baseline scenario assumes that Japan's economy is likely to continue growing at a pace above its potential on the back of synergy effects, stimulating economic activity, produced by the combination of expansionary fiscal policy through the large-scale stimulus measures and powerful monetary easing under "QQE with Yield Curve Control" -- the so-called policy mix.

Generally speaking, in the case where the government raises funds through increased issuance of government bonds and expands its spending, upward pressure on longer-term market rates will restrain private investment -- the so-called crowding-out -- and lessen the stimulative effects on economic activity. On the other hand, in the case where a central bank continues with monetary easing amid fiscal expansion, upward pressure on interest rates resulting from the issuance of government bonds will be contained, and the stimulative effects on economic activity will become strengthened due to the synergy effects of fiscal expansion and monetary easing. The baseline scenario assumes that real long-term interest rates will be at levels well below the natural rate of interest on the back of the Bank's powerful monetary easing, even amid expansionary fiscal policy through the set of stimulus measures. Based on such assumption, crowding-out resulting from fiscal expansion will be avoided and domestic private demand -- such as that for business fixed investment and housing investment -- that is responsive to interest rates is expected to continue increasing steadily through the projection period.

In order to empirically assess the effects of a policy mix, a simulation exercise on the effects of public investment is conducted based on the macroeconomic model Q-JEM developed at the Research and Statistics Department, Bank of Japan. In this exercise, the simulation is conducted in two cases: one where nominal long-term interest rates are endogenously determined, which will produce the rise in interest rates and the yen's appreciation, and one where they are exogenously fixed. The result shows that, in the case where nominal interest rates are fixed, business fixed investment is not contained through crowding-out; in addition, real exports are not reduced because yen appreciation resulting from the rise in interest rates is avoided (Box Chart 1). Consequently, real GDP increases

more than in the case where interest rates are endogenously determined, and the effects of pushing up the CPI inflation will be somewhat larger. In light of this, a fiscal multiplier, which is defined as the cumulative increase in real GDP divided by the increase in public investment, is 1.4 two years after such increase in the case where interest rates are fixed, and thus larger than 1.1 in the case where interest rates are endogenously determined.²⁹

²⁹ The effects of fiscal policy, particularly whether a fiscal multiplier can exceed 1 or not, have been the subject of numerous debates within economics academia, and this is yet to be settled. However, in recent years, the assertion that a fiscal multiplier can exceed 1 because crowding-out is avoided with a zero lower bound seems to attract support to some degree in both theory and practice.

Simulation of the Effects of Public Investment by Macroeconomic Model

Case: Public investment (% of nominal GDP) increases by 1% during the 1st year.

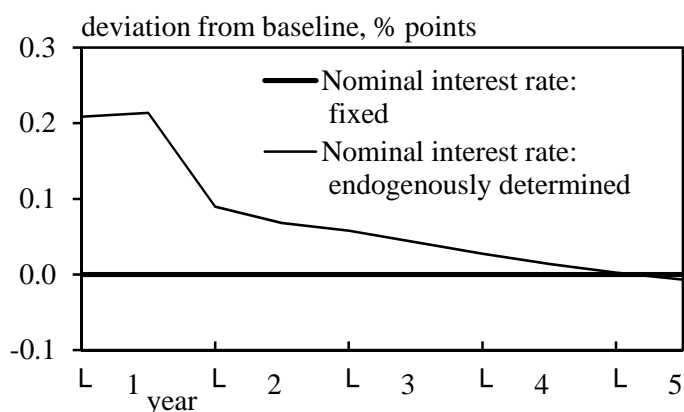
$$\left(\begin{array}{c} \text{Fiscal Multiplier} \\ = \frac{\text{Cumulative impact on real GDP}}{\text{Increase in public investment in the 1st year}} \end{array} \right)$$

$$\left(\begin{array}{c} \text{Impact on y/y \% change in} \\ \text{the CPI (less fresh food)} \end{array} \right)$$

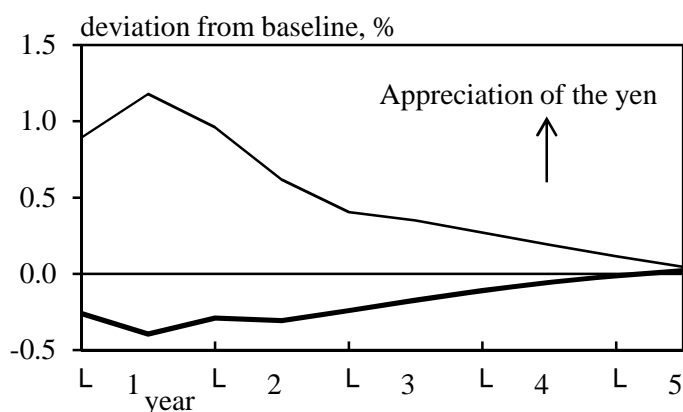
| | Fiscal Multiplier | | | | |
|---|-------------------|-----|-----|-----|-----|
| Year | 1st | 2nd | 3rd | 4th | 5th |
| Nominal Interest Rate: Fixed | 1.1 | 1.4 | 1.5 | 1.4 | 1.3 |
| Nominal Interest Rate: Endogenously Determined | 1.0 | 1.1 | 1.0 | 0.8 | 0.7 |

| | % points | | | | |
|---|----------|-----|-----|-----|-----|
| Year | 1st | 2nd | 3rd | 4th | 5th |
| Nominal Interest Rate: Fixed | 0.1 | 0.2 | 0.1 | 0.1 | 0.0 |
| Nominal Interest Rate: Endogenously Determined | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 |

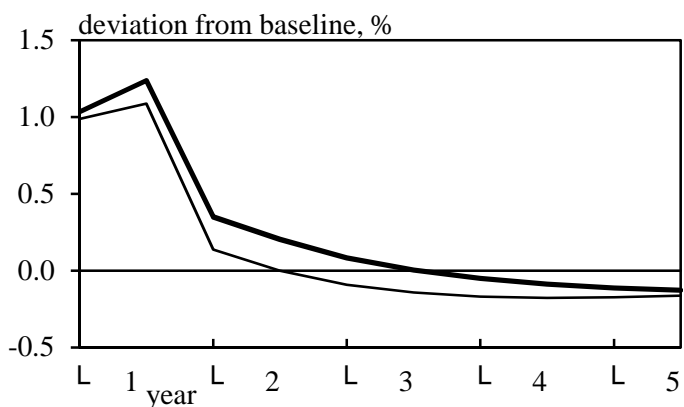
(1) Nominal Long-Term Interest Rate



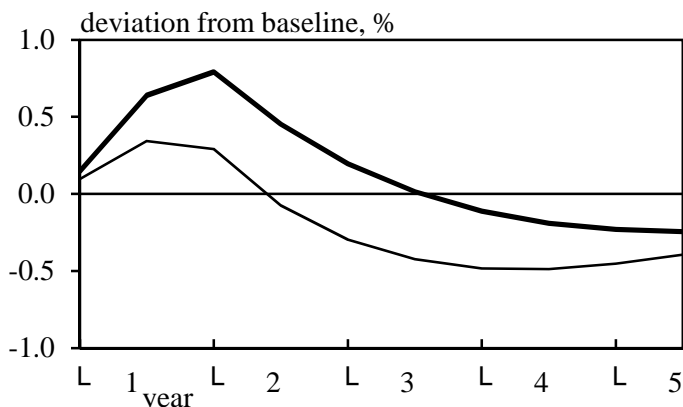
(2) Real Effective Exchange Rate



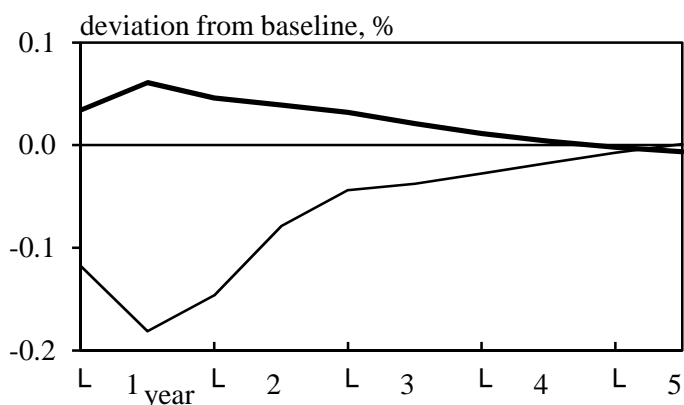
(3) Real GDP



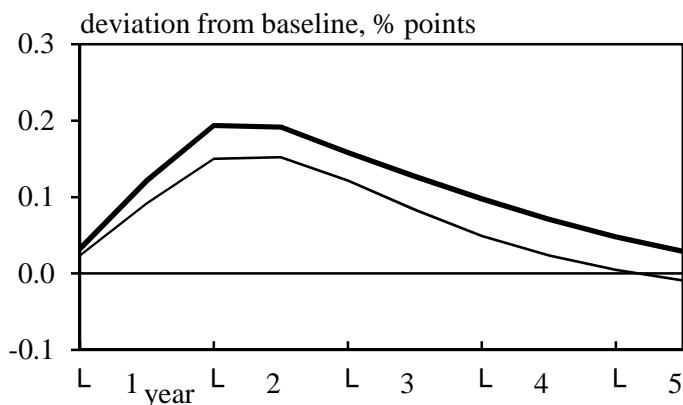
(4) Real Fixed Investment (Business and Housing)



(5) Real Exports



(6) y/y % Change in the CPI (Less Fresh Food)



Note: Simulations are based on Q-JEM, the macroeconomic model developed at the Research and Statistics Department, Bank of Japan. For details of the model, see "The Quarterly Japanese Economic Model (Q-JEM): 2011 Version," Bank of Japan Working Paper Series (11-E-11), etc.

Sources: Cabinet Office; Ministry of Internal Affairs and Communications; Bank of Japan, etc.