

Abstract

Economic revitalization has been a prioritized issue for a couple of years in Japan. In this circumstance, public investments are expected to generate positive effects on the economy as much as possible along with due consideration to achieving fiscal soundness. Endeavors to implement effective public investment should include not only quantitative evaluation of economic impacts from each investment individually, but also identifying long-term aggregated effects on entire economy. In order to achieve the goals, analytical approach applying latest macroeconomic studies must be important.

In this study, we develop macroeconomic models to evaluate impacts of public investment. More specifically, the models are sorts of New Keynesian Model as a Dynamic Stochastic General Equilibrium (DSGE), in which an assumption that households and firms behave as economically rational for future is valid.

In the context of DSGE studies, a presence of contradictive phenomenon between empirical evidence and theoretical prediction using the model, known as ‘fiscal policy puzzle’ has been pointed out by a number of previous studies. While clouding-out of household consumption occurs in DSGE model which embeds the Ricardian Equivalence principle of households’ expectation about future tax burden increase, several empirical studies have confirmed that household consumption responses increasingly to governmental expenditure which includes public investment, using time series analyses such as Vector Auto Regressive (VAR). Prior to developing DSGE model, therefore, we review previous literatures on fiscal policy puzzle and model modifications proposed to solve the puzzle in Chapter 1. Chapter 2 presents some empirical evidences of clouding-in effect of household consumption into fiscal policy using VAR models with up-dated macroeconomic data.

In Section 3.1, we develop a standard DSGE model which contains New Keynesian features such as rational households’ consumption, endogenous inflation rates by introducing monopolistic competition and price stickiness, and Taylor-rule-based financial policy. In Section 3.2, we expand the standard DSGE to take public capital into consideration as a factor of production. We set the DSGE which contains standard NK characteristics with productivity of public capital as a “baseline” model in our study. In Section 3.3 and 3.4, we attempt to expand our baseline DSGE model into two ways to address fiscal policy puzzle; one is introducing certain proportion of Non-Ricardian households who consume their income each period; and the another is introducing Non-separable preferences over consumption and leisure, and inertia of households’ consumption, known as ‘Deep habits’. Chapter 4 concludes the study and make some discussion for future research.

In order to achieve the goal, say, evaluation of public investment using the model, there are lots of tasks left behind. These include estimation of structural parameters with real data, simulation of fiscal policy shock, and calculation of multiplier. These are leftover for future study. However, we believe the results would contribute a part of the progress of DSGE development, even if our study is just a first step to make the model informative enough for fiscal policy decision-making.