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Comment   Kiyoshi Mitsui

In most macroeconomic models, evaluation of the effects of fiscal policies requires an understanding of the relationship between government spending and private consumption. This relationship crucially depends on whether private and government consumption are substitutes or complements (in an Edgeworth-Pareto sense). As Amano and Wirjanto (1998) show, when the intertemporal elasticity of substitution for consumption of the composite good is more (less) than the intratemporal elasticity of substitution between private and government consumption, the private and government consumption are Edgeworth-Pareto complements (substitutes). The issue of the intratemporal elasticity of substitution that this study deals with, therefore, has an important policy implication.

Before commenting on this study, I would like to place it in the context of the literature on this issue. The literature can be grouped into two strands from the standpoint of government behavior. In one strand of literature, it is assumed that government consumption is given exogenously. In the other, the government is assumed to behave optimally so that the level of government consumption is determined as the first-best solution.

Studies in the former strand of literature utilize the intertemporal first-order conditions (or Euler equations) of an optimal consumption model. It is often assumed that utility is a function of the effective consumption, which is the linear combination of private and government consumption.

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This linearity assumption gives the impression that it entails the linearity of indifference curves for private and government consumption. Under the assumption of exogeneity, however, this is not the case. As Karras (1994) points out, a function of government consumption can be added, without any revision of the basic argument, to the utility function in order to make the indifferent curve nonlinear. As Ni (1995) shows, however, the estimates of substitutability are affected by the specification of the utility function.

Studies in the latter strand make use of the intraperiod first-order condition in addition. The intraperiod first-order condition requires that the marginal rate of substitution between private and government consumption is equated to the relative purchase price of government consumption to the price of private consumption. Assuming that effective consumption is a linear combination of private and government consumption implies the linearity of the indifference curve in this case, since the government consumption is obtained by government's optimization. The linearity of effective consumption is, therefore, a very restrictive assumption in this context.

The latter group of literature can be grouped into two subgroups depending on whether intertemporal optimization condition is taken into account in addition to the intraperiod optimization condition. Amano and Wirjanto (1998), Okubo (2003), and Esteve and Sanchis-Llopis (2005) estimate both the intraperiod and intertemporal first-order conditions, because it is important for their analysis to examine whether private and government consumption are Edgeworth-Pareto complements or substitutes. Intertemporal elasticity of substitution, therefore, has to be assumed to be constant in order to estimate the intertemporal first-order condition.

In contrast, Chiu (2001) and this study both restrict their attention on the intratemporal elasticity of substitution between private and government consumption (or the intraperiod first-order condition) so that it is possible for them to use a more general utility function. Though Karras (1994) and Ho (2001) empirically test the substitutability for a number of countries in the former strand of literature, there are few cross-country empirical studies in the latter strand of literature. An important contribution of this paper, therefore, is to bring some empirical evidences from East Asian countries under a less restrictive utility function. One of the main empirical findings is that the estimates of the elasticity of substitution between private and government consumption are ranging between 0.57 and 1.05.

The first issue I would like to comment on is the estimation of the intertemporal elasticity of substitution. Though it requires the additional assumption on the constancy of the intertemporal elasticity, it is worth estimating the intertemporal elasticity in order to assess the Edgeworth-Pareto substitutability.

The second comment is concerned with the assumption about the optimality of the government behavior. This underlying assumption might be

difficult to hold in some countries in East Asia. The validity of this optimality assumption itself is, therefore, a very important issue to be tested in these countries.

My third comment has to do with a liquidity constraint. This paper assumes that all private agents do not face a liquidity constraint so that the level of their consumptions depends only on the relative price of government consumption with respect to private consumption. With regard to East Asian countries, however, it is worth investigating the possibility that a sizable fraction of consumers are subject to liquidity constraints. When a part of private agents is subject to a binding liquidity constraint, their consumption can be assumed to depend on current or transitory disposable income.

In concluding, this paper gives us important insights on the substitutability issue for East Asian countries. I would appreciate Professor Kwan's paper to work in this interesting area of research.

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Comment   Mario B. Lamberte

The paper empirically verifies the extent of direct substitution between government and private consumption in nine East Asian countries. A pos-

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