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Volume Title: Fiscal Policy and Management in East Asia, NBER-EASE, Volume 16

Volume Author/Editor: Takatoshi Ito and Andrew K. Rose, editors

Volume Publisher: University of Chicago Press

Volume ISBN: 978-0-226-38681-2

Volume URL: [http://www.nber.org/books/ito\\_07-1](http://www.nber.org/books/ito_07-1)

Conference Date: June 23-25, 2005

Publication Date: October 2007

Title: Comment on "External Debt, Adjustment, and Growth"

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URL: <http://www.nber.org/chapters/c0381>

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## Comment Francis T. Lui

Villanueva and Mariano's paper provides us with a useful framework for identifying the conditions under which the external debt level is sustainable. The latter is defined as the existence of a steady state to which the external debt/GDP level converges, and at the same time the economy is on a balanced growth path. To achieve this objective, prudent fiscal policy and promotion of private saving are recommended. These policy implications make a lot of sense. The actual application of the model to the Philippines is also credible. Countries with governments that are overspending or with people who do not save enough should take the paper seriously. Philippine policy-makers may also find estimate of the Golden-Rule saving rate interesting.

The model, built on earlier papers by Villanueva (1994, 2003), consists of 15 equations, which include identities, laws of motion, a production function, and an equation governing the rate of change of technology. There is also an equation, the consumption function, that is behavioral. A major improvement of this model over its earlier version and Villanueva (2003) is that an explicit optimization problem has been incorporated. By solving for the steady state and maximizing per capita consumption, the model can generate Golden-Rule consumption and saving paths. This exercise is important because it provides the calibrated results with a more solid microfoundation. Without the maximization, one may easily cast doubt on whether coefficients in the model are robust to policy changes.

The objective function of the maximization problem in the paper is per capita consumption. While this has the advantage of making the model simple and easily interpretable, it is not the same as the more conventional utility function. Concavity in the latter can allow us to take into account

risk aversion in a more satisfactory manner. Because of this shortcoming, the authors have to resort to introducing some risk premium in the interest rate. Although the risk premium is not entirely exogenous in the model, it is nevertheless independent of consumers' preferences or attitudes toward risks. It is not clear how significant it would be in affecting the quantitative calibrations.

A nice feature of the paper is that it has reduced the system of 15 equations into two first-order differential equations. This allows the authors to use simple phase diagrams to present their arguments. This is a convenient approach that helps the readers substantially in seeing through the possibly complicated dynamics involved. Although the paper has focused on the case that the equilibrium path is locally stable, this is not a necessary property of the model. Divergence is also possible when the slopes of the two curves in figure 6.1 change. It would be interesting or perhaps important for the authors to analyze situations of nonconvergence. The latter could lead to economic crises. Given the calibrated values of the parameters for the Philippine economy, as shown in the paper, there is local stability. However, the same model may also shed light on how certain parametric changes could result in divergence, and therefore possibly economic crises. While policymakers should know what is good for the economy, it may be even more important for them to avoid making major mistakes.

The Golden-Rule saving rate for the Philippines has been estimated to be 34 percent. Steady-state per capita GDP growth along the Golden-Rule path is 5.4 percent. These estimates seem to be consistent with each other, since we do see some Asian countries that save at similar rates can grow at around 5 percent or more per year. Although not unusual in Asian countries, a 34 percent saving rate would nevertheless be one of the highest in the world and would clearly be much higher than the Philippine historical average of around 19 percent. As such, one may ask how it is possible to raise the saving rate by such a substantial margin. Reducing government spending, as suggested in the paper, is clearly a possibility. However, the quantitative effect depends on whether government consumption and private consumption are substitutes or complements. If they are substitutes, reduction in government spending may not necessarily help to reduce overall consumption in society. Yum Kwan's paper on estimating the elasticity of substitution between government and private consumptions may shed light on this issue.

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