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namic effects of changes in government spending and taxes on output. *Quarterly Journal of Economics* 117:1329–68.

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Comment   Yum K. Kwan

How would Korean GDP react to shocks initiated from taxation and government spending? This is essentially the question the author would like to answer using the methodology of structural VAR analysis. As the entire paper is empirical and the findings inevitably depend on the adopted statistical models, the author has also conducted an extensive sensitivity analysis to ensure that the key conclusion is robust against various technical assumptions, an exercise that no doubt lends more credibility to the empirical findings. The paper also includes a summary of the relevant literature on the issue—particularly those written in Korean and unlikely to be accessible to international readers—which should be useful to anyone interested in the fiscal policy effectiveness issue and the Korean economy.

The author focuses on evaluating the effectiveness of fiscal policy in the business cycle frequency and therefore uses detrended data series in the VAR analysis. Two time-trend models are considered—deterministic linear time trend and the Hodrick-Prescott (HP) filter—and all results in the paper are reported in parallel with respect to these two detrending schemes. I am not sure whether the deterministic time trend case is of interest at all. First, the deterministic linear time trend model is not supported by the data—formal statistical tests usually suggest stochastic time trend (i.e., the presence of unit root) rather than deterministic time trend—as the author himself acknowledges this is indeed the case for the Korean output series. The presence of unit root in the VAR system will render the impulse-response function (IRF) difficult to interpret, as the IRF depends on the moving average representation of the system, which itself may not even exist at all. Second, deterministic linear detrending is seldom used in the business cycle literature because deviations from linear time trend are usually too persistent

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to be regarded as cyclical fluctuations over the business cycle. Third, even if we ignore the technical issue of unit root and nonexistence of moving average representation, the linear time trend case suggests incredibly long-lasting fiscal impact on detrended output. For example, the impulse response in figure 3.4 suggests that a tax shock can move output off trend for as long as ten years, which is just incredible to me.

One interesting finding of the paper is the predominant role of the automatic stabilization mechanism (ASM), which to a large extent neutralizes the contemporaneous effect of discretionary fiscal policy. Unfortunately, the paper says very little about how those numbers in tables 3.4 and 3.6 are derived. Table 3.4 is based on the Blanchard and Perotti model reported in (5) with the parameter β_3 set to zero. The model therefore rules out any feedback effect on government spending from either output or tax, implying that the government spending component of the ASM should be zero, which is inconsistent with what is reported in table 3.4.

The key finding of the paper is that fiscal policy in Korea has a weak impact on output, both in size and in persistency. We can question whether the fiscal data used in the analysis really contains any discretionary component at all, if the Korean government had really followed the rule of "Expenditure within Revenue" during the sample period, which is essentially a balanced budget principle. If tax and spending are really determined by the fiscal authority, who pays no attention to output fluctuations, we should expect the two fiscal series and the output series to run on separate courses and therefore there should not be any intricate lead and lag relationship between them. This perhaps can explain why the VAR analysis in the paper uncovers no significant causal relationship from the two fiscal series to the output series.