Dynamic CGE model of the Chinese Economy for Policy Analysis: A summary

Keshab Bhattarai

- China is predicted to be the largest economy in the world by 2020 according to the IMF forecasts. Annual growth rate of output that remained around 9.3 percent on average during 1980 to so15 period was made possible by the accumulation capital with steady flows of investment on average around 49.5 percent of GDP, increase in the human capital index from 1.8 to 2.6 in the country that has the largest population among all countries. Current account surplus stood around 3.4 percent of GDP. Macroeconomic stability mad such growth rate possible.
- Market friendly growth strategy however has led to a sharp increase in the income and consumption inequality. Inequality is deeper in the rural areas than in the urban areas. A representative household in the richest quintile earns eight times more than an average household in poorest quintile. This is five times more in urban areas. The Gini coefficient is recently estimated to be around 0.48. By this measure China has become the most unequal economy in the world. Similar disparities remain across provinces of China; per capita income of Tianjin was 99,600 Yuan compared to 22,921 Yuan of Guizhou.
- Chinese government has used public spending to create economic infrastructure and public services. The share of public spending and revenue has reached around 30 percent of GDP in China in recent years. Share of local government has risen steadily over years from 53 percent to 86 percent in 2013. Efficiency in the local governance thus is essential for correcting economic and social problems in China. VAT, corporation tax, business tax, consumption tax and income tax and tariffs are important sources of revenue. In 2013 these contributed to 26, 20, 16, 7, 6 and 2 percents of total revenue respectively. Compared to advance countries Chinese tax system still seems very regressive as the income tax contributes to the very small proportion of the total revenue. It is welcome that the share of VAT decreased from 36 to 26 percent and tax in corporate income tax rose from 8 to 20 percent but the very low income tax has caused income inequality to deteriorate. The adverse consequences of tax composition are to some extent mitigated by a more reasonable structure of public spending. Education, social safety, agriculture, public services, community, transport and health had 18, 12, 11, 11, 10 7 and 7 percents of public spending respectively.
- Policy makers in China now should be concerned about how the various measures of fiscal policy could be used to reduce income inequality among individuals and regions, to maintain steady rate of growth and achieve the macroeconomic stability in coming years. A dynamic CGE model, calibrated on the micro-consistent dataset of the Chinese economy is very essential in order to assess alternative policy scenarios to sustain growth with reasonable distribution of income.
- The DCGE model constructed in the Hull University Business School has more than 20,800 variables to represent output, investment, capital accumulation, employment, relative prices, exports, imports, tax payments as well as to compute the level of welfare of households in the economy. This model is solved balancing demand and supply with continuous adjustment in the relative prices, investment and capital accumulation. The major parameters of the model include the elasticities of substitution in production, consumption and trade. It contains flexibility of markets in goods and services or over pricing or mark up behaviour of firms. This is truly a micro-founded macro model of the Chinese economy designed to explain growth and redistribution simultaneously. Cost of tax and transfer distortions across firms and households can be measured by simulating the model. Current version of model analysis is based on changes on taxes on capital and labour inputs. This model precisely measures the economy wide impacts of policy choices of the government (see results in excel files or power point slides).
- Model will be extended to analyse issues of pensions or social security and the aging society; consequences of debt accumulation in the public and private sectors; to explain the consequences of public policy choices of the central and local governments.

[Full paper can be made available upon request]