

Productivity Commission Activity Report 2014-15

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Recent activity

The last few years have seen the Commission concentrate some of its modelling activity on purpose-built models, building simple-structured CGE models to facilitate the integration with other models, and using entropy techniques for database construction and parameter estimation. For example, the 3 papers to be presented at the GTAP conference in Melbourne:

1. Tim Murray built a small CGE model with GTAP data to analyse the **Effects of Mutual Recognition of Imputation Credits** between Australia and New Zealand. This paper was successful in demonstrating that there is a large range of potential wins and losses depending on assumptions about data and parameters, and that Australia is most likely to suffer an aggregate loss given the likely composition of the current capital stocks.
2. Xiao-guang Zhang developed a simple-structured CGE model to facilitate **Incorporating household survey data into a CGE model**. The simple structure means that the model can accommodate more than 8500 household types. The paper emphasises the importance of calibrating the data from the survey and from the i-o table accurately and shows an easy way to do this with the minimum of distortions. This paper is an important step toward being able to interface microsimulation models (MSM) with a highly complex representation of a tax and transfer system and a CGE model to produce MSM estimates that account for market effects.
3. Phil Harslett and Larry Cook wrote **An introduction to entropy estimation of parameters in economic models** to facilitate the use of entropy techniques where little information is available. The paper includes GAMS code that can be parameterised and put around any model to produce entropy-based estimates.

On the other hand, the Commission has also updated the MMRF (now referred to as the VUMR) model with a 2009-10 database and put a lot of work into designing an Australian baseline. This version, referred to as MMRF5 includes a cohort-based population module and a number of other features.

Current projects

In the context of the inquiry into the **Migrant Intake into Australia**, staff are developing a simple model to analyse migration decisions from the main source countries and the potential effects of applying a taxation system to certain types of migration. The MMRF5 model is also being prepared to assess the contribution of current migration to the Australian economy, and the economy-wide effects of moving to a system of taxing migration.

One of the motivations for the Zhang paper was the behavioural microsimulation (BMS) work developed for the inquiry into **Childcare and Early Childhood Learning**. The modelling was

designed to estimate the possible effects of changing childcare subsidies for various types of families. In the end, the policy did not result in large increases in labour supply or in demand for childcare (in part because the funding envelope was kept constant), so market and economy-wide effects were assumed to be negligible. But the project alerted us to the possibility of requiring to model the effects on labour supply of changes in transfers in a detailed fashion (requiring a BMS model) while accounting for market level effects on wage, and broader effects. (think of increasing the VAT and decreasing income taxes for some family types)

For this reason, we are developing an iterative BMS-CGE framework with the following characteristics:

1. about 13000 households who respond to changes in tax rates and in transfers by adjusting their consumption of about 70 commodities and their supply up to 8 types of labour
2. an accurate representation of the threshold and withdrawal rates of over 40 transfers and income tax schedules
3. a simple-structured CGE model built on a complete SAM to account for all budget constraints explicitly

Recent training

The Commission contracted CoPS to conduct training on the basis of MMRF. Approximately 20 staff from Treasury and the Commission attended. The course was conducted in both offices via videoconference. In addition, 2 staff attended Mary Burfisher's GTAP 101.