Non-Tariff Measures in CGE Models Session I: A Quick CGE Primer

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Introduction

- Gain a solid understanding of what a CGE model is, and the types of questions for which it is useful.
- Be able to run basic simulations with a single country CGE model.
- Understand the alternative ways of introducing NTMs into CGE simulations, and the practicalities of doing so, along with the implications of using different approaches.
- Be familiar with the types of results that emerge from CGE simulations incorporating NTMs relative to those that do not.

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- General equilibrium analysis is the branch of economics concerned with the simultaneous determination of prices and quantities in multiple inter-connected markets.
- It contrasts with partial equilibrium analysis models that consider only a single sector.
- The key characteristic of general equilibrium models is that they are economy-wide constraints apply at both the individual and the system level.
- It is used extensively in many branches of economics, most notably in macroeconomics and in international trade theory.

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- Often a change in an economic system will have repercussions far beyond the sector in which the change occurs.
- General equilibrium models are designed to help us understand those repercussions. Thinking in general equilibrium terms helps us to see the full consequences of policy changes.
- Thought Experiment: What is the effect of a increase in the import tariff applied to steel?

- Computable general equilibrium (CGE) models attempt to take the general equilibrium theory and turn it into a practical tool for policy analysis.
- They do so by building computer models of real economic systems, fitting the models to real data on the economic structure of those systems, and simulating the effects of policy changes inside the models.
- CGE models have been widely adopted in the trade policy literature. Recent surveys of their application see Scollay and Gilbert (2000), Gilbert and Wahl (2002), Robinson and Thierfelder (2002), Lloyd and MacLaren (2004) and Hertel and Winters (2005).

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- High degree of theoretical consistency.
- The ability to highlight the importance of linkages between sectors.
- The ability to incorporate unique features of an economic system.
- The ability to predict values for many economic variables in the system.

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- The data requirements of CGE models are substantial.
- The human capital investment required in building/using these models is very high.
- There is often uncertainty over parameters, specification, and experimental design.
- By covering all sectors in an economy, a CGE model may miss key features of critical sectors.
- It can be difficult to know what is driving the results (the 'blackbox' critique).

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- CGE is *not* an appropriate method for all types of question, though it can be very helpful for some.
- The policy question involves large changes that are well outside of historical experiences. This suggests the need to use simulation techniques of some kind.
- The policy question involves multiple countries and/or multiple sectors. This suggests that we need general equilibrium rather than partial equilibrium techniques.
- Or, the policy question involves only one sector directly, but that sector is large enough to have an impact on the overall economy.



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