

Comments from a CGE Modeling Perspective

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Classifying Economic Effects of NTMs

- NTMs have a trade restricting (cost raising) effect, that we call the **protection effect**, potentially on either the import or export side.
- They also have other effects, since they are intended to regulate various aspects of the domestic economy.
- **Supply shifting effects** are associated with policies intended to deal with externalities associated with supply. For example, health regulations limiting sales, or SPS measures. These policies may require use of certain techniques, or certain content requirements.
- **Demand shifting effects** may occur when policies are used to handle certain externality problems associated with demand. For example, compulsory labeling.
- **CGE models have mostly been used for assessing the welfare implications of the protection effect of NTMs, but could be used for understanding the economy-wide implications of the others.**

Incorporating NTMs into CGE Simulations

- This study focuses on estimating AVEs – the part of the difference between world and domestic prices not explained by tariff measures.
- Given estimates of the AVEs, the NTM measures can be introduced to CGE models in two basic ways:
- The first is by introducing the NTMs as tariff equivalents (or export tax equivalents if on the export side). This is the method noted in the study.
- The second is by introducing non-revenue generating price wedges (iceberg costs).
- In some cases, quantitative restrictions can be modeled using a variable import levy.

NTMs as Tariff Equivalents

- This is appropriate in cases where the NTM is 'tariff like' in the sense that it generates a rent that accrues to an agent in the economy.
- To model reductions in NTMs as tariff equivalents, the tariff measures in the model must be adjusted to incorporate the estimated NTMs.
- Because tariffs are revenue generating, the associated revenue must also be changed, and the allocation of the flows of revenue must be accounted for in some way.
- In other words, the equilibrium data of the model must be adjusted – this sounds simple but is generally a non-trivial thing to do!
- The easiest way to adjust the data of a general equilibrium model is via a counterfactual simulation - but the simulation distorts the equilibrium following the assumed theory – we are no longer simulating relative to observed data.

- The key concern with this approach is the adjustment of the tariff revenue and accounting for where it goes.
- If we only adjust the tariff rates, then we are implicitly assuming that any rents associated with the NTM in question are captured by the government and disbursed in the same way as other tax revenues.
- This might be valid under some circumstances (e.g., auctioned quota rights), but is likely to be violated under others (e.g., if the rent accrues to other agents, or if there are rent-seeking costs that dissipate all or part of the rent).
- Correct attribution of the rents requires detailed knowledge of how the NTMs function in practice.
- This is especially important in models with multiple households.

NTMs as Iceberg Costs

- Iceberg trade costs are a simple way of modeling the NTMs in terms of lost imports/exports. The idea is that some of the product is lost between the the buyer and the seller (think a melting iceberg). This is the approach suggested in the study.
- We can think of NTMs as iceberg cost as representing 'sand in the wheels' of trade.
- This might be more appropriate when modeling the impact of standards harmonization, trade facilitation and so on.
- The reason is that the price differential implied by the AVE is assumed to be entirely explained by efficiency losses due to NTMs.

- The fact that there are no revenues involved with iceberg trade costs lends a major advantage technical – no adjustments need to be made to the underlying equilibrium data.
- This approach is very popular because of its simplicity.
- It will tend to generate much larger efficiency impacts for a given AVE than tariff equivalents – possibly unreasonably large since it is unlikely that many NTMs have pure efficiency impacts.
- One possibility is to treat the efficiency effects of removing tariff equivalents and iceberg costs as lower and upper bounds, respectively, on the protective effect of a given AVE.

What Do We Need? Sectoral Detail

- CGE models are all about understanding how policy affects economic structure.
- Overall AVEs are useful measures, but for modeling need to know about the levels of NTMs across sectors, with as much detail as possible.
- Nice to see the sectoral estimates in this study, although still much more aggregated than typical CGE model.

What Do We Need? Mechanisms of Action

- Different NTMs require different modeling techniques.
- We can summarize the protective effect of NTMs with AVEs, but the reality is that an iceberg-type cost is different from a tariff-type cost, and both are different from quantitative restrictions.
- To say that a quantitative restriction is equivalent to a tariff is only true at an equilibrium – it doesn't follow that the response to changes in the equilibrium (which is what we are usually interested in) will be the same.

What Do We Need? Allocation Issues

- In many cases we are interested in the allocative implications of policy or other economic changes.
- Even for NTMs with tariff-like mechanisms of action, we want to know about the revenue allocation if our questions concern distribution.
- Estimation Variability: We need to know about the variation in the estimates themselves, for sensitivity analysis.
- We need to know more about demand shifting and supply shifting interventions.

What Do We Need? Variation Information

- For modelers it is useful to know not only about variation across sectors, but also about a variation in the in the estimates themselves.
- A critical part of CGE modeling is sensitivity analysis. We need to recognize that our simulation results are random variables depending on estimated parameters.

Other Outstanding Issues

- While CGE models tend to focus on the protective effect of NTMs, the demand/supply shift issues are also important from a policy perspective. Ideally we would like to consider optimal policy balance, but this is highly situation specific.
- Some rudimentary attempts have been made by shifting Armington elasticities (e.g., adopting common standards may make domestic and foreign goods more interchangeable). Data is limited.
- In some cases NTMs may have direct impacts on firm fixed cost, either of production or entry into export markets. This creates another channel through which NTMs can work/be modeled, but increases complexity (since economies of scale are generally associated with imperfect competition).