

POLICYNOTE

PROJECTED BENEFITS OF THE DOHA ROUND HINGE ON MISLEADING TRADE MODELS

Lance Taylor & Rudiger von Arnim

Lance Taylor is the Director of the Schwartz Center for Economic Policy Analysis (SCEPA) and the Arnhold Professor of International Cooperation and Development at the New School for Social Research. Rudiger von Arnim is a Research Assistant. This SCEPA Policy Note is based on their 2006 paper for Oxfam International titled, "Modeling the Impact of Trade Liberalization: A Critique of Computable General Equilibrium Models."

The World Trade Organization's Doha Round of multilateral trade negotiations, named because it originated in the capital of Qatar, has collapsed as of this writing. Negotiators have been unable to reach agreement in the face of repeatedly missed deadlines. Despite this stalemate, many believe that negotiations may be revived.

Whether Doha is revived or not, there are decided differences of opinion regarding the likely benefits, and beneficiaries, of a new round of tariff reductions. Proponents of a Doha revival claim that there will be significant global benefits. But others suggest that benefits will be marginal, and that they will be significantly different for developed, developing, and the least developed countries. They will also affect specific industries differently. Recent research done by the authors and others suggests that some developing nations may be made worse off as a result of an agreement.¹

The principal concern of this paper is that projected welfare gains from trade liberalization are derived from global computable general equilibrium (CGE) models, which are based on highly unrealistic assumptions. CGE models have become the main tool for economic analysis of the benefits of multilateral trade liberalization; therefore, it is essential that these models be scrutinized for their realism and relevance. In this SCEPA Policy Note, we analyze the foundation of CGE models and argue that their predictions are often misleading. We find that any possible Doha trade agreement is likely to introduce substantial macroeconomic risk for developing countries, and particularly sub-Saharan Africa.

THE PLAYERS

One reason why it has been so difficult to reach a new WTO agreement is that there are three major negotiating blocs with different economic characteristics and, therefore, different trade interests. The developed world, represented by the member countries of the OECD, aims to maintain its traditionally high protection for agriculture while demanding improved market access in developing countries for agriculture, manufacturing, and services exports. The large developing countries such as India, Brazil,² and Argentina hope to reach an agreement that allows protection as well as development policies in those sectors, and a substantial reduction in developed countries' agricultural tariffs and subsidies. The poorest countries, whose small economies are often heavily dependent on foreign aid and a few primary commodity and agricultural exports, feel the need to defend preferential trade agreements and to promote exports and economic diversification, while demanding special protection against increased import competition.

CGE MODELS AND THEIR LIMITATIONS

Estimating the benefits or "welfare gains" from trade liberalization is a difficult task. Countries produce a wide range of goods and services and trade them amongst each other. The costs of their production, the availability of their resources and inventories, and the accessibility and quality of their labor varies widely. In sum, as economists would put it, we generally know little about the shape and location of supply- and demand-schedules. CGE models aim to calculate such benefits, and begin with a consistent accounting framework called the Social Accounting Matrix (SAM). Economic theory then brings the accounting to life using behavioral equations to estimate the direction and impact of a "shock" to the system, such as the removal or reduction of a tariff or subsidy. In addition, each CGE model requires "closure" assumptions that define the direction of causality among variables.³ Just like the parameters of the behavioral equations, these so called "closure assumptions" are chosen by the individual modeler, and have a significant effect on the size and the direction of the projected welfare changes.

Parameter values strongly influence results, and this is precisely the problem. The size of the potential welfare gains from trade liberalization depends on the assumptions made in choosing the

1. Polaski, 2006; Taylor & von Arnim, 2006.

2. In 2004, India and Brazil joined the United States, the EU and Australia to form the core negotiating group of the Five Interested Parties (FIPs).

3. Taylor and Lysy, 1979; Taylor, 2004.

reactions and influences among the variables. More precisely, the gains depend on the elasticity parameter and the characteristic bend and slope of a schedule. The magnitude of the trade elasticities is of critical importance for simulation results, and the World Bank has been rightly criticized for using unusually high elasticities that lack empirical support.⁴

SMALL GAINS, REAL LOSSES: WORLD BANK ESTIMATES AND THEIR ASSUMPTIONS

The most recent World Bank estimates predict roughly \$287 billion in global welfare gains over time as a result of a Doha agreement.⁵ It is important to note that these estimates are roughly \$100 billion lower than earlier World Bank projections, largely due to updated data sets.⁶ As we have noted, we believe the LINKAGE model⁷ used to estimate these gains is based on a series of unrealistic assumptions.

A classic and important example of the sort of unrealistic yet sweeping assumptions the World Bank adopts in its LINKAGE model has to do with the macroeconomic consequences of a reduction in tariffs. Obviously, such a reduction will result in lost government revenues and either a small budget surplus or a higher deficit. The World Bank model assumes that the government's budget surplus or deficit does not change—in other words, that they raise other taxes to make up the shortfall—and that the macroeconomic impact is neutral. In another important case, the World Bank also assumes that labor is fully employed, even though a tariff reduction in some industries would cost jobs that may very likely be hard to replace through employment in other industries, even if those industries benefit. Aside from assumptions that governments do not run budget deficits and that labor is always fully employed, the World Bank also assumes that trade is always balanced and that, in conjunction, the exchange rate is free to adjust, ensuring the quick and painless correction of the trade deficit. Thus, given this set of assumptions ensures that the macroeconomic indicators—employment, government deficit, and trade deficit—do not impact model outcomes.

A second set of similarly controversial assumptions concerns the details about how the model is put in place. These are a bit more technical. Here, the World Bank assumes that domestic product and imports combine into “one good with distinct characteristics,” leading some consumers to substitute one for the other following price changes. It also assumes that reduced tariffs will trigger productivity gains over time, when in fact Ricardian theory predicts only static or one-time gains. In sum, these are strong assumptions that we believe are unwarranted.

Most important, recent research that relaxes a number of these assumptions predicts benefits much smaller than in the World

Bank studies, and also shows that a number of countries and sectors in the developing world will lose. A recent model by the Carnegie Endowment for International Peace, with more realistic assumptions, estimates a \$168 billion global economic gain over time, or \$43 billion per year, as a result of full liberalization. This is equivalent to a rounding error in a \$44 trillion world economy.⁸ Such limited gains, along with the potential damage to individual sectors and developing economies, is likely contributing to the inability to reach agreement in the Doha Round.

Our study employs a revised CGE model representing sub-Saharan Africa and the rest of the world. Our modeling and simulation strategy is to mirror the essential structure of the World Bank's LINKAGE model. However, instead of focusing on disaggregating the global economy in scores of countries and sectors, we aim to shed light on the implications of assumptions.

Thus, in order to be able to critique LINKAGE, we replicate several aspects of the model, while making some changes that are required for such an effort. Specifically, we analyze only two regions with three sectors that characterize interactions between rich and poor countries. We take a static viewpoint, thus we do not assume that efficiency gains trigger productivity and growth over time. We also experiment with varying elasticity values, so that we can avoid the pitfalls of unequivocally choosing sides in an area with conflicting empirical evidence. Our baseline scenario features lower elasticity values because we think they are more realistic. Most importantly, however, we do not treat unemployment and the trade deficit and government debt as constant, but allow them to vary. Relaxing these assumptions marks a major departure from the World Bank's model and hopefully makes our results of some value to policymakers, who may be concerned with such macroeconomic implications as higher unemployment (which, to repeat, the World Bank model assumes away).

Our findings suggest that the effects of multilateral trade liberalization with these assumptions are quite different than the World Bank concludes. To take but one example, if taxes on households are raised to offset the loss of government revenue from the tariff cut, then consumption of clothing overall may not rise adequately unless elasticities based on price are very high. Sub-Saharan Africa may thus face welfare losses even in an otherwise optimistic situation. Our revised CGE model also suggests that Africa, though not the developed world, would probably face a deteriorating trade balance. When the analysis allows for a changing rather than a fixed government budget deficit, the African public balance often deteriorates, whereas the rest of the world's fiscal position improves.

Finally, our study finds that if employment and income are variable, they may increase in sub-Saharan Africa, but do so in tandem with mounting trade deficits and foreign debt, rendering

4. Ackerman, 2005.

5. Anderson et al., 2006.

6. World Bank, 2002.

7. See van der Mensbrugge (2005) for model specifications.

8. Poleski, 2006.

such advances temporary. Rather than rejoicing about the former, the latter foreshadow the potential of debt and currency crises, making it all the more important to take the macroeconomic aspects of liberalization into account.

POLICY IMPLICATIONS

We do not intend to engage in the debate about the exact magnitude of welfare losses or gains from a likely Doha agreement. We believe that claims for such precision are unwarranted by these models. Rather, our aim is to analyze the typical CGE trade model, and to present a simplified model with more realistic assumptions and dynamics.

Our research suggests that developing countries would be ill-advised to follow the radical recommendations of the World Bank's liberalization strategy insofar as it rests on results from the current trade models. At this point, there is every reason to demand serious revisions to proposals from developed countries prior to any revival of the Doha process.

We appeal for more honest simulation strategies that produce a variety of plausible outcomes. Such models would better enable policy makers to assess the different scenarios for themselves. Simulation results cannot be considered in a vacuum, and results alone do not provide sufficient evidence for key decision-making. CGE models can be useful quantitative supplements to thought experiments about the importance of different potential causal linkages among economic variables at the country or world level. However, mechanically churning out projections of welfare gains subject to a single set of causal assumptions and parameter values is a fundamental misuse of this tool.

REFERENCES

1. Ackerman, Frank. (2005). "The Shrinking Gains from Trade: A Critical Assessment of Doha Round Projections." Working Paper.
2. Anderson, Kym, Will Martin, and Dominique van der Mensbrugghe. (2006). Market and Welfare Implications of the Doha Reform Scenarios. In *Agricultural Trade Reform and the Doha Development Agenda*, ed., Kym Anderson and Will Martin. London and Washington: Palgrave Macmillan and World Bank.
3. Armington, Paul S. (1969) "A Theory of Demand for Products Distinguished by Place of Production," *IMF Staff Papers*, 1969, 16: pp. 159-178
4. Polaski, Sandra. (2006). *Winners and Losers: The Impact of the Doha Round on Developing Countries*. Washington: Carnegie Endowment for International Peace.
5. Stanford, James. (1992). "C.G.E. Models of North American Free Trade: A Critique of Methods and Assumptions." Testimony to the United States International Trade Commission, 1992.
6. Taylor, Lance. (2004). *Reconstructing Macroeconomics: Structuralist Proposals and Critiques of the Mainstream*, Cambridge Massachusetts, Harvard University Press
7. Taylor, Lance, and Lysy, Frank J. (1979). "Vanishing Income Redistributions: Keynesian Clues About Model Surprises in the Short Run." *Journal of Development Economics*, 6, pp. 11-29.
8. Taylor, Lance, and Rudiger von Arnim. (2006). "Modeling the Impact of Trade Liberalization: A Critique of Computable General Equilibrium Models" Oxford UK: Oxfam International.
9. van der Mensbrugghe, Dominique. (2005). "Linkage Technical Reference Document." Development Prospects Group, The World Bank.
10. World Bank. (2002). *Global Economic Prospects 2002: Making Trade Work for the Poor*. Washington.