UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

POLICY ISSUES IN INTERNATIONAL TRADE AND COMMODITIES
STUDY SERIES No. 4

WHAT CAN THE DEVELOPING COUNTRIES INFER FROM THE URUGUAY ROUND MODELS FOR FUTURE NEGOTIATIONS

by

John Whalley

Professor of Economics
Universities of Warwick and
Western Ontario, and NBER

UNITED NATIONS

New York and Geneva, 2000

NOTE

The views expressed in this study are those of the author and do not necessarily reflect the views of the United Nations.

The designations employed and the presentation of the material do not imply the expression of any opinion whatsoever on the part of the United Nations Secretariat concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Material in this publication may be freely quoted or reprinted, but acknowledgement is requested, together with a reference to the document number. A copy of the publication containing the quotation or reprint should be sent to the UNCTAD secretariat:

Chief
Trade Analysis Branch
Division on International Trade in Goods and Services, and Commodities
United Nations Conference on Trade and Development
Palais des Nations
CH – 1211 Geneva

ABSTRACT

This paper discusses the results from general equilibrium trade models executed towards the end of the Uruguay Round, reporting both aggregate and regional gains. These results were generated some five years ago, and were important to the debates at the end of the Uruguay Round as to what would be the foregone gains were the Round not to conclude. The paper argues that there are substantial, and at times hard to explain inconsistencies across model results. One model shows most of the gains come from agricultural liberalization, another from textiles, and yet another from tariff cuts. One model shows developing countries account for around 10 per cent of the total gain, another shows them to gain over 50 per cent. One model shows developing countries losing from elimination of the MFA, another shows them as large gainers. One model shows that imperfectly competitive and scale economy effects double global gains, another shows almost no impact. These differences occur even where similar data sets, and benchmark years are used, and are hard to explain on the basis of parametric specifications for models seemingly used, though these are frequently poorly exposited. The paper also discusses the verification of models relative to behaviour since the Round concluded, expressing skepticism as to its feasibility for reasons set out in the paper. It also attempts to discuss what, if any, are the implications for the developing countries, and the possible ways forward in making these models more useable to developing countries for the next round of trade negotiations.

ACKNOWLEDGEMENTS

CONTENTS

I. INTRODUCTION

In the period overlapping with the conclusion of the Uruguay Round (say, between 1993 and 1996), at least eight global multi-commodity multi-region equilibrium models (by my count) were constructed to analyze the potential impacts of the Round. Such models had been built on a smaller scale during the Tokyo Round, but this represented a major enlargement of previous activity of this type. New (and large) model admissible data sets were assembled; the major institutional players (the WTO (GATT), the World Bank, and the OECD) all housed and supported in various ways one or more of these modelling efforts and with enhanced computing power and software, models were in place that could be quickly solved and resolved for sensitivity and other analyses.

This paper looks back at these efforts with a new Round still under discussion after Seattle, and asks what developing country negotiators can infer from the results from the models by way of pointers for their negotiating positions for a new Round. The conclusion is that at first sight, the picture is one of substantial confusion. Some model results suggest that the gains to developing countries from the Uruguay Round might have been only small (say 10 per cent of the total global gain) while some have them as much larger (over 60 per cent of the total). One can also find model results that seemingly indicate that

developing countries either lost from the elimination of the MFA or gained substantially; that the largest sources of gain in the Uruguay Round lay either in agriculture or in textiles, or even in tariff cuts. One can become further confused by seeing model results that suggested that, potentially, liberalization in services could dominate everything else in the Round; or results that suggest only small impacts from services.

If this is not enough, one can get into more technical aspects of the modeling work and find results showing that introducing scale economies and market structure considerations into models doubles the gains, and counter claims and results that they will not.

One can read discussions of sensitivity analyses showing that model results are robust to significant variations in elasticities, and other discussions of how results are, in fact, substantially elasticity dependent. And if one cares to descend into results reported for individual countries and regions, one can find changes of sign and size across models and regions for particular results, and claim positive country impacts as large as 20 per cent of GDP. If as a developing country negotiator, one wanted to draw upon the model results to support or help frame a negotiating position for the next round, seemingly there is support for almost anything one wanted to argue. The

1

gains to developing countries could be large or small; agriculture could be the most important issue, or it could be services. Impacts on individual countries could be positive or negative, large or small.

These may strike negotiators as somewhat strange and overly negative conclusions to draw from this modeling work. Quantification of trade policy impacts is usually thought of as good, bringing important factual material to bear on policy. If model results differ in some way, surely they must be able to be reconciled, and we can see what the differences in model design and execution are that account for them. Data, model parameter values, estimates of trade distortions, and theoretical structures are the ones that come most readily to mind. Furthermore, given that the models were built some five years ago, equally surely with hindsight and data generated since the Round, we should be able to readily see which model predictions were right and which were wrong.

Some of the modelers have made (often heroic) efforts to reconcile their results with others, and these help a little in sorting things out. But at the same time, it is unfortunately the case that the differences I list above re-

main largely unreconciled, and hence a source of confusion for trade negotiators. Also, Uruguay Round model predictions are difficult to verify *ex post* from 2000 for a number of reasons. Key predictions relate to things not directly measured (like welfare); the decisions of the Uruguay Round remain (in 1999) only partially implemented, in contrast to the full implementation assumed in the models; and all manner of developments outside the Uruguay Round decisions have influenced the actual behaviour of the global economy (and probably more so than the Round's decisions).

In the paper I first describe key differences in model results, and ask what can account for them. I also speculate why these differences have remained so relatively unnoticed for so long, and what this implies for how model results are used more widely in the policy process. I then discuss what all of this may mean both for formulating of negotiating positions in the new Round, and for any associated new modeling efforts parallel to it. Specifically, I ask how modellers might be able to work more effectively together, so as to improve the value of their joint work for negotiators.

II.   DIFFERENCES IN RESULTS FROM URUGUAY ROUND MODELS

For the purposes of the present discussion I will focus on eight models, each of which sought in various ways to analyze the impacts of the Uruguay Round during the early - mid 1990's. Their focus was on welfare impacts, trade flows, production and consumption; both in aggregate and individually for key regions and economies. The early versions of these models looked prospectively at what a package of liberalization in the Round might be, along with its implications; the later models sought to analyze the impacts of the actual package which resulted as negotiations concluded. The focus of modeling was on those elements which more easily lent themselves to quantification (tariff cuts, agriculture, textiles) rather than hard to quantify elements (dispute settlement, TRIMs, TRIPs). Some of the more difficult to model elements, such as services, received partial quantification. I discuss both the model results and the underlying structures and data used, stressing a comparative approach, and emphasizing the estimated impacts on the developing countries.

The eight models at issue are all numerical general equilibrium models. I view them as fairly conventional in structure relative to previous literature, and in the spirit of Hecksher-Ohlin models which dominated trade theory from the 1940's until the mid 1970's,

which there are production functions with inputs (capital and labour) and outputs, as well as intermediate products. Exports are given as sales abroad of country specific goods, and imports as purchases from all other regions. In such an Armington structure, all pairwise trade flows of goods between regions are identified.

Trade barriers in the model regions operate against the various traded goods; and they restrict trade and change trade patterns, demands, and supplies. Changes in trade barriers, as occurred under Uruguay Round liberalization, alter trade, consumption and production across regions, and prices of products across regions adjust to clear markets. Constant elasticity of substitution (CES) functional forms are nearly uniformly used in these models. Welfare impacts are evaluated by comparing regional welfare before and after liberalization, with changes in welfare converted into an equivalent monetary measures (so called money metric welfare measures).[1]

A few further points should be noted about these models. One is that they typically assume perfect competition and constant returns to scale, although in some cases model variants embodying increasing returns to scale and imperfect competition are used (there is