

Trade and Gender in a Global CGE Model

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I. Introduction

Men and women are affected by trade liberalization differently as the factors of production are reallocated among sectors that employ men and women in different intensities. The importance of acknowledging the gender-differentiated impacts of trade reform is increasingly recognized in the policy debate and in the literature. Through its impact on the relative prices of goods, trade may induce changes in the allocation of factors of production across sectors which in turn may affect employment and remuneration. Some studies have found that women benefit from trade as labor-intensive sectors such as garments, basic manufactures, and tourism sectors expand. Similarly, a number of studies have found that women in agriculture in food-importing developing countries may be harmed by trade reform that allows the influx of cheaper food imports. The impacts of trade reform on men and women employed in different sectors and regions will depend on many factors including the modalities of the trade reforms, labor markets institutions, resource endowments, and sectoral gender intensities. Understanding the channels through which global trade reform may impact men and women would be facilitated by enhancing the same global data and models used in trade policy analysis.

Emphasis on gender equality was strengthened in 1995 during the Fourth World Conference on Women convened by the United Nations in Beijing and through its inclusion as one of the Millennium Development Goals (MDGs). The proportion of women engaged in paid employment has risen in the last two decades, corresponding to the period of multilateral and regional trade liberalization (Cagatay 2001). Quantitative assessments of the potential global impacts of multilateral trade reforms burgeoned since the signing of the Uruguay Round in 1994 and through the negotiations under the Doha Development Round which was launched in 2001. Regional trade agreements also proliferated over the same period and many studies have quantified their potential impacts. Most of these quantitative analyses of trade reforms use global computable general equilibrium (CGE) models which illustrate the linkages between sectors within an economy and the linkages between countries. These global CGE models rely on the Global Trade Analysis Project (GTAP) database, a multi-regional, multi-sectoral database designed to capture the economy-wide relationships among sectors in a region and interregional trade relationships. In the past 15 years, global CGE models, together with the GTAP database, have become the standard quantitative tool in assessing the impacts of trade reforms on sectoral adjustments, patterns of production and trade, and well as regional welfare. These models have also been used to assess the impacts of other recent global shocks such as the food crisis and financial crisis, bioenergy mandates, demographic changes including migration, and climate change. However, with the absence of gender differentiation in the global CGE database and models, there have been no attempts at assessing the impacts of multilateral reforms using a gendered global model.

The study seeks to quantitatively assess the gender-differentiated impacts of multilateral trade reforms. As a first step, the study aims to develop a gendered global database where male and female employment are incorporated by sector and country. This paper focuses on the development of this

global database and, building on the current MIRAGE CGE model, on a theoretical model for the assessment of the gendered impacts of trade liberalization. This important development will constitute a corner stone in analyzing the gender dimensions of trade agreements and can be used in subsequent research on the gendered impacts of global shocks.

II. Trade and Gender

The importance of introducing gender into CGE models has been emphasized, see Çağatay, Elson, and Grown (1995) and Grown, Elson, and Çağatay (2000). Several studies have assessed the gendered impacts of trade reform using single-country CGE models. These approaches include the simple inclusion of gender differentiation in employment (Arndt and Tarp 2003, Weerahewa 2002, Sinha and N. Sangita, 2003) and the integration of non-market activities in the model (see Fontana and Wood 2000; Fofana, Cockburn and Decaluwe 2003). These different country models employ different modeling assumptions and parameters which hinder direct comparisons about modeling results. Additionally, gendered single country CGE models do not capture the potential feedback effects of trade reform to other countries, e.g. decline in a country's processed food exports as a result of expansion of trade in women-labor intensive clothing exports. A gendered global CGE database and model here will address these deficiencies.

III. Data and Methodology

The intertwined relationship between international trade, gender, and poverty are most suitably assessed by a CGE models since these models provide an economic integrated framework that captures the behavior of economic agents, resource constraints, input-output relationships between sectors, and inter-regional linkages relationships through trade, protection, transport, and investment. A major initial step entails the introduction of gender differentiated data into an existing global CGE model.

Gender-differentiated employment data by sector and region are introduced in the global GTAP 7.1 database. The current GTAP database represents the global economy in 57 sectors, 20 of which are in agriculture and food processing, and 113 regions. The database includes wage value data (expressed in thousands of 2004 US dollars) for skilled and unskilled labor in the value-added split (labor, labor, capital) for each sector and region. The data and methodology employed for splitting the skilled and unskilled labor categories in the GTAP database, which are largely based on data from a few countries, are revised in this study. This revision relies on a global matrix of gender-differentiated sectoral employment data compiled from various sources such as the country Labor Force Surveys from the International Labor Organization (ILO), the Rural Income Generating Activities (RIGA) database of the Food and Agriculture Organization (FAO), augmented by data and shares coefficients from available gendered social accounting matrices (SAMs) and household surveys. The gender-disaggregated data from various sources are reconciled and missing data are generated using data available for other sectors and countries through econometric estimation.

The current standard version of the global MIRAGE model is revised to incorporate skilled and unskilled labor differentiated by gender into the model. The components of value-added in the MIRAGE model are land, skilled labor, unskilled labor, capital, and natural resources. The model is modified to recognize four different categories of labor for each sector, as provided in the new global database.

Gendered analyses of multilateral trade liberalization under the most recent Doha modalities are conducted using the gendered global database and revised, gender-aware, MIRAGE model. The study identifies the differential impacts on trade reform in men and women in different sectors and regions. The assessment with the new model is patterned and compared to existing studies of the impacts of multilateral trade reform using the standard Mirage CGE model.

IV. Model and Simulations

V. Results

VI. Conclusions

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