

CHAPTER 3

The Analytical Approach

It is useful to describe at the outset the analytical tool or model and the scheme of analysis used to obtain the economic and social consequences of removing protection. We begin by examining the essential as well as desirable properties of any tool for analyzing the issues addressed. Then, in Section 3.2, we justify our approach and briefly describe our analytical tool, the Basic Linked System (BLS), in a nontechnical fashion. The scheme of analysis followed (including a description of the notion of trade liberalization in this study, the alternative scenarios, the approach used to explain the results of scenarios, and the welfare indicators used to evaluate the results) is described in Section 3.3.

The reader who is primarily interested in the results can, without loss, skip Section 3.2.

3.1. The Analytical Framework Needed for Assessing Impacts of Trade Liberalization – and Our Approach

For a satisfactory analysis of the impacts of agricultural trade liberalization, one needs a framework that accounts for a number of important interrelationships and feedbacks. There are three groups of actors within each country: namely, *producers* who *supply* commodities and *demand* inputs including primary factors; *consumers* who *demand* commodities and *supply* primary factors; and *government*, which sets taxes, subsidies, and quotas, and otherwise intervenes in the market. Each group is constrained – producers by technology, consumers and government by their budgets – and economists usually assume that the agents are rational and that each maximizes its objective. It is also customary in microeconomics to assume that profits are maximized by producers, utility by consumers, and social welfare by governments. Alternatively, governments can be described by behavior rules that may or may not correspond to any explicit maximization of an objective function. When agricultural trade is liberalized,

relative prices and the relative scarcity of resources such as land, labor, and capital change. One should model:

- (1) The response of:
 - (a) Producers to the prices of inputs and outputs they face.
 - (b) Consumers to the prices of factors and consumer goods that they face.
- (2) The determination of consumer income as a function of factor prices and factor supplies.
- (3) Finally, the market clearance condition.

These responses of producers, consumers, and government interact in the determination of the new equilibrium.

The need to account for the effects of price changes on farmers' incomes, and consequently on their consumption as well, is particularly important for countries where agricultural incomes form a large part of national incomes, as is the case for most developing countries.

Since the difference between domestic supply and demand is, by definition, the volume of international trade, it is usually, though not always, much smaller than domestic supply or demand. Changes in demand due to changes in income, assuming domestic supply is fixed, get fully reflected in trade volume. Thus, even small income effects can lead to large changes in traded quantities.

It is well known that the impact of changes in domestic prices on net exports can be of either sign. The analytical implication of this is that the equilibrium interactions between prices, supply, income, demand, and trade all have to be considered. And these interactions cannot be correctly assessed if there are unaccounted supply sources or demand sinks that mask some feed-backs. In other words, a closed general equilibrium framework incorporating *all* supply sources and demand sinks is needed.

Trade policies are but a part of a government's economic policies. For analyzing the consequences of substantial shifts in trade policies, such as those implied by trade liberalization in most countries, one needs to account for the changes in the government's other policies. The macroeconomic effects of policy changes can have a significant impact on trade patterns as well as on income distributions.

For example, if tariffs are a major source of government revenues, trade liberalization not compensated by external aid or transfers will lead to higher taxes or lower government revenues, public consumption, and/or public investment. Even when the lost tariff revenue is regained through changes in other taxes, the incidence of these taxes may fall on groups other than those that bore the burden of the tariff.

Even small changes in policy, such as changing over from tariff to an equivalent quota, may affect income distributions. Unless the government auctions the quota, which governments seldom do, the tariff revenue, which accrued to the government earlier, now accrues as a rent to the party to whom the quota is allotted.