PART ONE

INTRODUCTION

ONE

Understanding Government Interventions in Agricultural Markets

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> Find out the cause of this effect,
> Or rather say, the cause of this defect,
> For this effect defective comes by cause.
> – Polonius, in Shakespeare's *Hamlet* (Act II, Scene 2)

Most of the world's poor still live in rural areas, a situation that is forecast to prevail for many decades to come if we continue with "business as usual." The absolute number of rural poor people living on $1 a day fell between 1993 and 2002 by an estimated 150 million, to 890 million globally, but if China is excluded, there has been virtually no net decline over that period (Chen and Ravallion 2008, Ravallion, Chen and Sangraula 2007). As well, many urban poor are recent emigrants who, perceiving bleak prospects in agriculture, moved to the city in search of a higher income. Thus higher rewards to farming in developing countries could help reduce both urban and rural poverty, a view that is confirmed by a recent set of simulation studies (Anderson, Cockburn and Martin 2010).

In the past, earnings of farmers and agribusinesses in developing countries often have been depressed by prourban and antiagricultural biases in own-country policies. While progress has been made over the past two or three decades by numerous countries in reducing those and associated antitrade policy biases, many price distortions remain intersectorally as well as within the agricultural sector of low- and middle-income countries. Some governments provide explicit subsidies to selected food consumers, but they are often offset by implicit distortions to consumer prices via border measures such as taxes or quantitative restrictions on imports.

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In addition to the impact of own-country policies, farm earnings in developing countries are depressed by agricultural protection measures in other (especially high-income) countries, which lower real prices of food, feed, and fiber in international markets. This issue has escalated in recent years because of the Doha Development Agenda of the World Trade Organization (WTO): Agricultural exporting countries are demanding large cuts to farm subsidies and barriers to food imports in protective countries, as well as the removal of nonreciprocal preferential market access arrangements for former colonies under the Cotonou Agreement.

WHY THIS ISSUE IS IMPORTANT

These distortions to incentives, which have characterized world agricultural markets for a long time (Haberler 1958, Johnson 1973, Bates 1981, Tyers and Anderson 1992), matter because they are wasteful of the world's resources and exacerbate global inequality and poverty. They are wasteful of resources not only at any point in time (reducing the allocative efficiency of both producers and consumers), but also in the sense of slowing national and global economic growth. Growth is slowed in part because many of the distortionary policies restrict imports, and in some cases exports, and so curtail the normal dynamic gains from trade. As well, the antitrade bias in those policies has a particularly debilitating characteristic that arises because those measures typically involve fluctuating trade restrictions that attempt to stabilize domestic food prices over time. Such market-insulating behavior of governments necessarily "thins" international food markets and so makes them less stable, which in turn encourages other national governments also to be market insulating.

Agricultural policies that support farmers in high-income countries and tax them excessively in developing countries necessarily add to income inequality across countries. They also add to within-country inequality of income and wealth because they most commonly operate through altering the prices of outputs (and sometimes also purchased farm inputs), and hence benefit farm households in proportion to the marketed output of their farm. In the case of tenanted farms, most of those benefits will accrue, in the form of higher rent, to the landowner, who is almost invariably wealthier than the tenant. In the case of farm outputs sold under contract to processors or retailers, some of those benefits will be passed from the farmer along the value chain, depending on the relative bargaining power of the processor or supermarket vis-a-vis the (typically much smaller and poorer) farmer.

In addition to being wasteful of resources and exacerbating inequality and poverty, trade-distorting agricultural policies impose another cost on the world economy in the sense that they have greatly slowed progress in multilateral trade negotiations. Since the signing of the General Agreement on Tariffs and Trade (GATT) in 1947, agricultural policies have been so contentious as to be left aside in the first seven rounds of multilateral trade negotiations. They were responsible too for the eighth one (the Uruguay Round) taking a mammoth eight years to complete; and they are the main reason for the difficulties in concluding the current round (the WTO's Doha Development Agenda). That difficulty, in turn, has contributed to a proliferation of regional and other preferential trading agreements that may well have added to global distortions to agricultural incentives. It also means a delay in or foregoing of the prospective gains from reductions of barriers to trade in nonfarm goods and services that the WTO might have delivered by now.

If distortions to agricultural markets are so pervasive, and the reform of farm protection measures so elusive, there must be strong political economy reasons for such widespread intervention by governments. Improving our understanding of the political economy forces at work is an important part of economic analysis because, as Stigler (1975, p. ix) says, "Until we understand *why* our society adopts its policies, we will be poorly equipped to give useful advice on how to change those policies." Greater understanding is also required if we are to provide more nuanced counterfactuals and hence more reliable projections of the likely economic effects of remaining and prospective price and trade distortions, using forward-looking national and global sectoral and economywide models.

WHY FOCUS ON THIS ISSUE NOW?

This area of political economy analysis was a focus of researcher attention in the 1980s, perhaps stimulated by the prospect of agricultural protectionism being taken more seriously in the Uruguay Round of GATT negotiations. As well, international financial institutions were concerned that agricultural and trade policies were inhibiting growth prospects in developing countries. Emerging political economy theories from the University of Chicago (Stigler 1971, Peltzman 1976, Becker 1983) and the influential work of Downs (1957), Buchanan and Tullock (1962), and Olson (1965) provided new conceptual frameworks for addressing this issue; and new time series estimates of price distortions, by Krueger, Schiff and Valdés (1988, 1991) for eighteen developing countries and by Anderson, Hayami and Others (1986) for a similar number of high-income and newly industrializing countries,

induced a rich set of empirical studies in the 1980s and the first part of the 1990s (see the survey in de Gorter and Swinnen 2002, which is updated in Chapter 3 of this volume by Swinnen 2010a). More estimates of the extent of agricultural price distortions in high-income countries have been generated each year since 1986 by the Organization for Economic Cooperation and Development (OECD) (2008), but until recently there had been no comparable effort for monitoring developing country policies.

To generate a set of distortion estimates for non-OECD countries that are comparable to those for OECD countries requires careful domestic-to-border price comparisons for each product, so as to capture the effects on producer and consumer prices of such measures as export restrictions, nontariff import barriers, exchange rate distortions, and exceptions to the applied import tariffs such as duty drawbacks or preferential arrangements with certain trading partners. To get an indication of how distortions have changed over the course of economic and political development requires those price comparisons to go back in time.

A recent research project at the World Bank has addressed this lacuna (see http://www.worldbank.org/agdistortions) by developing a methodology for measuring the extent of distortions to agricultural incentives (Anderson et al. 2008) and applying it consistently to seventy-five countries spanning between 90 and 96 percent of the world's farmers, agricultural production, GDP, and population. The resulting database (Anderson and Valenzuela 2008) includes annual nominal rate of assistance (NRA) and consumer tax equivalent (CTE) distortion indicators for more than seventy crop and livestock products (an average of eleven per country) that cover around 70 percent of agricultural output of each of the focus countries for as many years as data allow since the mid-1950s (an average of 41 years per country). The database thus comprises a large panel dataset of around 30,000 NRA and CTE estimates. Moreover, it identifies several groups of policy instruments from which the price distortions arise (domestic farm output and input tax/subsidy equivalents, domestic consumer tax/subsidy equivalents, and import and export tax/subsidy equivalents including via the operations of multiple foreign exchange rates), and it includes, in the final aggregate national NRA, any non-product-specific payments. As well, a separate line identifies so-called decoupled payments that have been provided increasingly to farmers in some OECD countries since the late 1980s.

It is not possible to understand the characteristics of agricultural development with a sectoral view alone, so the World Bank research project estimated consistent time series not only of the extent of direct agricultural policy measures on farm prices, but also of distortions in nonagricultural

tradable sectors, for comparative evaluation (with both including the differential effect on exportables and import-competing products of distortions in the domestic market for foreign exchange). Specifically, it provides a production-weighted average NRA for nonagricultural tradables, for comparison with that for agricultural tradables via the calculation of a Relative Rate of Assistance (RRA), defined as the percentage by which the price of farm relative to nonfarm tradables is above what it would be if the national government had not distorted prices in those goods-producing sectors. This measure is useful in that if it is below (above) zero, it provides an internationally comparable indicator of the extent to which a country's sectoral policy regime has an anti- (pro-)agricultural bias.

Moreover, the creators of each country's database have used the NRAs and CTEs to write an analytical narrative of national economic and policy developments, and those are now published.[2] Also, the database has been used to generate a set of agricultural trade- and welfare-reduction indexes for that same time period (Anderson and Croser 2009; Croser, Lloyd and Anderson 2010; Lloyd, Croser and Anderson 2010). The NRAs and CTEs also have been aggregated in a way that makes them usable to national and global economywide computable general equilibrium (CGE) modelers (Valenzuela and Anderson 2008) as a replacement to the tariff-only developing country distortion indicators in the GTAP global protection database; and that resource has been used already by modelers to analyze (a) market and welfare effects of reforms since the early 1980s and of remaining distortions globally (Valenzuela, van der Mensbrugghe and Anderson 2009), and (b) household income inequality and poverty consequences of recent distortions in various developing countries (Anderson, Cockburn and Martin 2010).

Meanwhile, in the past two decades, huge strides have been made in developing political economy theories for government intervention in markets, as well as econometric techniques for testing empirically between them.[3] While that recent theoretical and empirical work has not focused

[2] The working paper versions of those narratives and the associated national spreadsheets can be found at http://www.worldbank.org/agdistortions. A global overview of the results is provided in Anderson (2009), and the detailed developing country case studies are reported in four regional volumes covering Africa (Anderson and Masters 2009), Asia (Anderson and Martin 2009), Latin America (Anderson and Valdés 2008), and Europe's transition economies (Anderson and Swinnen 2008).

[3] See the survey in Swinnen (2010). Included in that literature are three new seminal studies of the long history of policy choices by governments and the role of institutions and conflicts in affecting those choices, by Acemoglu and Robinson (2006), Findlay and O'Rouke (2007), and North, Wallis and Weingast (2009). A short but pithy study of policy developments in the late 20th century in sub-Saharan Africa is available in Bates (2008).

on agriculture particularly, it is a rich source of inspiration for developing hypotheses as to why the pattern of global distortions to agricultural incentives has developed in the ways exposed in the new World Bank agricultural distortions database. One of the points of emphasis in the new political economy theories is the importance of political institutions. Partly as a result, the World Bank has also been developing global time series databases on political institutions (Beck et al. 2001, 2008) and on governance as it affects business incentives (Kaufmann, Kraay and Mastruzzi 2009).[4]

The economics profession is thus in a far better position now than ever before to develop and empirically test competing and complementary hypotheses as to why governments have done what they have done to agricultural markets and farmer welfare leading up to and since the 1950s in different parts of the world. Given the ongoing difficulty WTO members are having in being able to agree to multilateral reforms in agricultural and trade policies under the Doha Development Agenda, not to mention the continuing cost to national governments and most of their constituents of current farm policies, there is a potentially high social payoff from such research.

WHAT THIS BOOK SEEKS TO ACHIEVE

The present volume is the first attempt to use the World Bank's new agricultural distortions database to revisit the question of why governments intervene in the ways they do to distort incentives facing producers and consumers of farm products. It does so by making use of the new political economy theory which, in the light of the stylized facts that can be distilled from the new Database of Agricultural Distortions, provides a conceptual framework for better understanding the long history of agricultural export taxation and import protection growth, as well as for suggesting numerous testable hypotheses. The final section of the book contains several political econometric studies that begin to exploit these new frameworks and data.

What Still Needs to be Explained? Findings from the New Database

Chapter 2 provides a comprehensive summary of the evidence from the new estimates of price distortions, from which twenty stylized facts

[4] The World Bank has also prepared an annual report of 200-plus pages each year since 2004 on doing business in around 180 countries, which provides indicators of the changing degree of government regulation in each national economy, including of its trade with the rest of the world. See http://www.doingbusiness.org.

are presented (Anderson et al. 2010). Some of those are familiar, being unchanged from the findings of the earlier empirical work on this topic in the 1980s. An example is that poor countries tax farmers, rich countries protect them, and as countries become less agrarian in the course of their economic development, their policies transition from the former to the latter – and to a greater extent and earlier the weaker a country's agricultural comparative advantage. The agricultural policy regimes thus also tend to have an antitrade bias. Other stylized facts are new, either because previous, less comprehensive databases were insufficiently detailed (e.g., in specifying contributions to assistance from different policy instruments) or because there are new policy developments requiring explanation (such as the slight reversal of agricultural protection growth in the European Union and the gradual increase in importance of decoupled payments to farm households).

Specifically, the additional stylized facts that political economists could seek to explain include the following:

- Within the agricultural sector of each country, whether developed or developing, there is a wide range of product NRAs. Despite the fall in average agricultural NRAs, the across-product standard deviation of NRAs around the national average each year is no less in the most recent decade or so than it was in previous decades for both developed and developing countries (see the national Box plots shown in Figure A.4 in the Appendix to this volume, Anderson and Croser 2010). Some product NRAs are positive and high in almost all countries (sugar, rice, and milk), others are positive and high in developed economies but highly negative in developing countries (most noticeably cotton), and yet others are relatively low in all countries (feedgrains, soybean, pork, and poultry).
- The antitrade bias in farm products has declined over time for the developing country group, but mainly because of the decline in agricultural export taxation and in spite of growth in agricultural import protection, whereas for the high-income group, the antiagricultural trade bias has shown little trend over time, mainly because the rise and then decline in agricultural export subsidies has been matched by a similar trajectory for import protection.
- Around the long-run trend for each country, there is much fluctuation from year to year in individual product NRAs, and while this tendency has diminished since the mid-1980s for most key products, it has increased for rice and wheat (see the national Box plots shown in Figure A.3 in the Appendix to this volume, Anderson and Croser

2010). Product NRAs tend to be negatively correlated with movements in international prices of the products in question and, on average over a sample of twelve key products, barely half of the change in the international price is transmitted to domestic markets within the first year.

- Even when decoupled payments are included in the measure of total support, trade policy instruments (export and import taxes, subsidies or quantitative restrictions plus dual exchange rates) account for no less than three-fifths of agricultural NRAs, and hence for an even larger share of their global welfare cost. Domestic subsidies to or taxes on farm output and food consumption have made only minor contributions. Subsidies to farm input use and support for public agricultural research have been common but have added little to overall farmer assistance in high-income countries and have done very little in the past to offset the effective taxation of farmers in developing countries.
- The fall in assistance to producers of nonfarm tradables has contributed to more than half the rise since the mid-1980s in the RRA for developing countries, and as much as two-thirds of the RRA rise for high-income countries. This suggests much of the reduction in relative prices faced by farmers over the past two decades can be attributed to general trade liberalization rather than to specific farm policy reform.

The penultimate section of Chapter 2 examines econometrically the extent to which the cross-country variation in nominal and relative rates of assistance can be accounted for by the explanatory variables used in the 1980s. It finds that two variables alone – per capita income and a relative factor endowment indicator of agricultural comparative advantage – explain a little more than half of the variation in the full panel's NRAs and RRAs (adjusted R^2 of 0.55 and 0.59, respectively). When those panel data are separated by region, however, there is a considerable range in the extent to which those two variables account for the variation across countries. In the case of RRAs, the adjusted R^2 is a high 0.72 for Asia, a moderate 0.33 and 0.42 for Latin America and high-income countries, respectively, but just 0.07 for Africa. Clearly there is a great deal more heterogeneity among countries to be explained outside of Asia, and especially in Africa.

The final question raised by the data summarized in Chapter 2 is whether or not more developing countries will follow the example of earlier industrializers and increase assistance to their farmers as their economies and polities develop. One might have hoped the Uruguay Round Agreement on

Agriculture would bring that tendency to a halt, but in reality, even newly acceding countries such as China, let alone earlier signatories to the GATT such as India, have bound their agricultural tariffs and subsidies at very much higher levels than currently applied rates. Moreover, there appears to be a strong reluctance on the part of most developing countries to sign on to a WTO agreement under the Doha Agenda that would tighten those bindings. Political economy analysis clearly is needed not only to address this question as to whether more developing countries will become more agricultural protectionist but also to suggest politically feasible ways of countering that tendency.

New Conceptual Frameworks

To begin the process of providing explanations for the half or so of the variation in NRAs and RRAs that is not due to differences in just income per capita and comparative advantage, Chapter 3 provides a survey of findings from the political economy literature to date (Swinnen 2010a). First it covers the active period of analysis of agricultural policies up to the early 1990s, and then it reviews the important new developments in other parts of the economics profession that are yet to be applied extensively to agricultural distortions. One of the findings from the new literature is that political institutions and ideology matter. This suggests that analytical narratives, based on detailed knowledge of the countries involved and of their policies, remain important. Specifically, they can assist in deciding on specifications of the political economy model to be applied, provide a complementary set of insights to those generated from econometric model results, and serve as a guide to interpreting the results. Thankfully, the providers of national NRAs and RRAs to the new Database of Agricultural Distortions each authored an analytical narrative that has since been published as chapters in a series of five books (see footnote 2 for this Chapter), which increases the prospects for sound political economy analysis using this database.

With that literature review as background, Chapter 4 provides a conceptual framework for moving forward (Rausser and Roland 2010). In seeking to explain public policy choices, it assumes vested interest groups are the units of analysis that compete by spending time, energy, and money on the production of pressure to influence both the design and tactical implementation of policies. Thus both public and private sector agents are involved. Modern economics has compartmentalized the links between them into at least four analytical dimensions. The oldest and