

# Reducing Distortions in International Commodity Markets

## An Agenda for Multilateral Cooperation

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## Abstract

Global commodity markets are affected by a variety of government policies that may expand or lower overall supply and as a result affect world prices for the specific products concerned. Market failures and market structures (market power along the value chain) also affect supply. This paper briefly reviews a number of factors that may distort international commodity markets with a view to identifying elements of an agenda for multilateral cooperation to reduce such distortions. Much

of the policy agenda that arises is domestic and requires action by national governments. But numerous policies—or absence of policy—generate international spillovers that call for the negotiation of international policy disciplines. Independent of whether distortions are local or international in scope, the complexity of prevailing market structures and their impacts on efficiency call for much greater monitoring and analysis by the international community.

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# **Reducing Distortions in International Commodity Markets: An Agenda for Multilateral Cooperation<sup>\*</sup>**

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## Introduction

World commodity markets—and particularly the markets for agricultural commodities—remain highly distorted despite the wave of liberalization that has swept world trade since the 1980s. These markets are distorted on both the export and the import side, with serious implications for world prices and their volatility. Market failures abound in the production of many commodities. These include inadequate pricing of many common-pool resources, externalities associated with the extraction and use of commodities such as fossil fuels, and massive externalities associated with the production of many agricultural, forestry and fish products. Very few of the price distortions found in commodity markets can be justified as dealing with such market failures, although *ex post* justifications along these lines are sometimes offered. Rather, most of these distortions are designed to achieve redistributions of income by raising or lowering prices in a way that will transfer resources to favored groups. To the extent that they do contribute to reducing any of the problems of market failure, this is typically coincidental.

There remains much that can be done at national, regional and global levels to reduce the existing distortions and improve outcomes worldwide—ideally in conjunction with introducing policies to reduce the adverse consequences of the profound market failures existing in many markets. However, without an understanding of the forms, objectives and effects of the various interventions by governments, it will be very difficult to secure reform that will enhance world welfare. The objectives of these national policies are frequently quite complex and nontransparent. In many cases, there are multiple objectives, such as raising or lowering the average level of a commodity price, but also reducing its variability. Tracing through the effects can also be complex, with ultimate impacts frequently quite different than they might at first appear. Since the effects of various measures are often interdependent and instruments may be strongly substitutable, we take a broad approach in inventorying the policies used. Reform efforts require a good understanding of the objectives and political economy forces influencing policies in a particular area, or reform is likely to encounter unexpected resistance. The same applies to efforts to design and negotiate new international disciplines that aim to reduce the negative cross-border pecuniary spillovers created by national policies.

In this paper, we first provide a description of the broad types of intervention prevailing in and affecting global commodity markets. We begin in Section 1 with a discussion of the most

common type of intervention in commodity markets: actions designed to affect the domestic price of a commodity relative to its international price. Most attention with this type of measure has focused on interventions designed to increase the level of the domestic price relative to the international price using instruments such as tariffs. However, there are also many types of intervention designed to reduce domestic prices relative to international prices in order, for example, to lower the price of an input used in a politically powerful industry. In Section 2 we discuss another politically-important type of intervention: measures aimed at reducing the volatility of domestic prices relative to world prices. In Section 3 we turn to a discussion of the implications for multilateral cooperation and rule-making efforts. Section 4 concludes.

### 1. Measures Affecting the Level of Prices

Measures designed to affect the level of commodity prices have received the most attention in the economic literature because of their prevalence. These measures can be divided into those that attempt to influence the domestic price relative to external prices, and those—mostly on the export side—that seek to influence the level of world prices. There is a dizzying array of measures of this type, many of which have been used for a very long time.<sup>1</sup> A brief list of major measures of these types is given in Table 1. All of these instruments affect trade, acting on either volumes or prices.

**Table 1. Some measures designed to influence commodity price levels**

<b>Policy instrument</b>	<b>Import side</b>	<b>Export side</b>
Border measures	Import duties/subsidies	Export taxes/subsidies
Quantitative restrictions	Quotas, licenses, etc.	Export restrictions/bans
Public monopoly	State trading	State trading
Competition policy	Anti-cartel enforcement; parallel imports/exhaustion regime	Antitrust exemptions for private export cartels
Contingent protection	Antidumping, safeguards	
International agreements		Export cartels
Production controls		Production cartels
Subsidies	Production subsidies	Export subsidies

A huge literature has emerged seeking to understand the reasons behind the use of measures designed to change the level of domestic prices relative to world prices. Two broad

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<sup>1</sup> For a partial list of measures used or envisaged in the 18<sup>th</sup> Century, see Hamilton (1791).

explanations for the emergence of trade barriers have been identified. The first focuses on the political-economy factors that influence the level and the economic costs of protection. The second considers the terms-of-trade implications of trade barriers.<sup>2</sup>

The political-economy explanation for protection relies on the fact that some producers are better organized to seek support from governments than are other sectors, and consumers. The political economy explanation is relevant to a variety of underlying objectives. In practice a common objective of groups seeking support is to increase domestic economic activity, and this can be pursued through a mix of instruments, ranging from import protection to taxation of exports of inputs used by an industry. Thus we include under this heading industrial policy arguments and objectives.<sup>3</sup> While policy makers recognize that protection creates economic inefficiencies and costs, the political-economy benefits to them are believed to outweigh these costs enough to generate substantial rates of protection even when the benefits to politicians of campaign contributions are only modestly higher than their perceptions of the social costs of protection (Goldberg and Maggi 1999).<sup>4</sup> Negotiations about import protection to a particular industry also tend to be heavily influenced by the specific situation of that industry, without taking into account the general-equilibrium implications for other sectors. However, the cumulative effect of decisions to grant protection to industries that are collectively important is to impose cost burdens on the exporting sectors both directly by raising the costs of (protected) inputs and indirectly by raising the prices of nontraded goods. International trade negotiations can change the political-economy balance by causing export interests that are adversely affected by protection to become engaged in the political process (Anderson, 2010).

Protection may also be motivated by a desire to benefit at the expense of foreigners. Import protection may generate a benefit to the country by reducing the price that it pays suppliers for imported goods. The cumulative effect of import protection or the direct effect of export taxation may be to increase the prices received for exported goods (Broda, Limão and Weinstein 2008). If a country possesses monopoly power for a product, some type of export

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<sup>2</sup> In this paper we abstract from revenue considerations as a motivation for taxation of trade. In practice trade is often an important source of revenue for governments of low income countries.

<sup>3</sup> The common element underpinning the intervention in trade is to move away from a neutral incentive regime, i.e., to differentiate between sectors in terms of the effective taxation they confront.

<sup>4</sup> The framework often used for political economy analyses of trade policy is Grossman and Helpman (1994). See Gawande and Hoekman (2006) for an application of the Grossman-Helpman framework to agricultural policies in the United States.

restraint will be optimal from the perspective of maximizing national welfare. Whether it does so depends on whether the government is able to determine the right level of the restriction—which will be a function of the elasticity of demand for product, the existence of substitutes, etc. While the use of export restraints in situations where a country has market power may make economic sense – e.g., Tarr (2010) concludes that the export taxes that are imposed by the Russian Federation on natural gas very substantially benefit Russia and raise Russian welfare— it is easy to get it wrong. Thus, Tarr (2010) also finds that the optimal export tax on timber for Russia – another product in which the country has the ability to influence world prices – is around 12 percent, half the level of what was being imposed in 2009 and much less than the 80 percent level that was proposed by the government.

Whether import duties and export taxes are explained by political economy or terms-of-trade arguments, the determinants of these measures tend to be couched in terms of levels. The Grossman-Helpman (1994) model, for instance, explains high rates of protection in terms of generally stable factors such as the import demand elasticity (which influences the cost of providing protection); the share of domestic output in total production (which determines how much of the benefit of the protection provided accrues to interest groups, rather than the national budget); and whether the sector is organized to lobby for protection. Where export barriers are used for political-economy reasons—as, for example, to drive down the price of a commodity used as an input by a more politically-powerful “preferred” sector—the same stability in tax rates is likely expected. If policy is driven by terms-of-trade objectives protection will be higher in commodities for which the foreign elasticity of export supply is low (and hence an import barrier will improve national income by reducing import prices to a greater degree). Similar arguments apply to export restrictions used to improve the terms of trade and to measures resulting from imperfect competition.

Quantitative restrictions, including bans on imports or exports, are sometimes used to restrain trade. Relative to price-based measures such as tariffs or export taxes, they have the disadvantage that their impacts on domestic prices are nontransparent. It is difficult to know, for example, how much an import quota of 1000 tonnes restricts trade and raises prices. Only by converting it into an import tariff equivalent can we begin to gauge how much it restricts trade. Even if a quota has roughly the initially-desired degree of trade restrictiveness, the extent to which it restricts trade can change sharply as the domestic demand or supply changes in response

to subsequent shocks. When a quota or license becomes restrictive of trade, it becomes valuable. While the allocation of quotas or licenses in this situation can be a way to compensate domestic losers and achieve policy reform, this process does not raise government revenues, and can easily result in corruption.

State-trading systems, under which the right to trade is allocated only to one or a few firms, are frequently used to manage agricultural trade. When these firms are directly controlled by the government, the resulting system can operate just like a quota regime, with the government choosing the quantity to be imported or exported.<sup>5</sup> If the firms have autonomy in the amounts they trade, the outcome may involve reductions in the volume of trade that depend upon the firms' perceptions about the elasticity of market demand, and their conjectures about the behavior of their competitors (McCorriston and MacLaren 2011). Such arrangements may involve the state-trading enterprise setting prices on the input side (e.g., credit, seeds, transport) as well as for the output that is produced. Under GATT rules, any regime in which firms have exclusive or special privileges in trading is classified as a state trading regime and must abide by the nondiscrimination rules (WTO 1995, p. 509).<sup>6</sup>

Where monopolies or oligopolies in trade arise in the absence of government privileges—perhaps because of the size of the market—there may be similar issues to those arising with state trading enterprises. In this case, however, in principle the threat of entry provides an important check on the exploitation of market power, and national competition legislation (antitrust enforcement) can be used to discipline illegal restrictive business practices. As has been documented extensively, commodity value chains are characterized by imperfect competitively market structures (e.g., Connor, 2003). Domestic processors for example often have a degree of market power, as do suppliers of certain types of inputs (seeds, fertilizers, chemicals) – a number of which have formed international cartels at different points in time, including in recent years (Bolotova, Connor and Miller, 2005). Similar economic effects can arise from the (non)application of antitrust law as derive from trade policies affecting exports and imports.

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<sup>5</sup> Irwin (1996) points out that the term “free trade” originally emerged in parliamentary debates at the end of the sixteenth century as an antonym for trade conducted through firms given trading rights by the government, rather than as a goal of trade not subject to measures such as tariffs.

<sup>6</sup> See Hoekman and Trachtman (2008) for a discussion of a case brought against the Canadian Wheat Board and the reach of the applicable WTO rules. The Appellate Body has ruled that WTO rules do not imply “comprehensive competition-law-type obligations” on state-trading enterprises (WTO, 2004b, para. 145).

Examples include exemptions for national firms for behavior on export markets—such as export cartels—that would otherwise be illegal, as long as the actions do not have negative effects on consumers in the home market, and the extraterritorial application of antitrust law for the benefit of national consumers. In recent years increasing attention has been given in policy circles to potential competition concerns arising from the expansion of global value chains and increasing concentration at specific segments of such chains. We come back to this below.

Contingent protection measures such as antidumping, safeguards and countervailing duties are typically used less frequently in markets for agricultural and mineral commodities than for manufactures. They are, however, widely used in markets for products such as chemicals, for which the marginal costs of production are low and prices volatile, and hence likely to fall frequently below the overall cost of production.<sup>7</sup>

Production and export quotas were central elements of the International Commodity Agreements administered by UNCTAD (Rieber 1985, Raffaelli 1995). They were used in an attempt to restrict the supply of commodities and hence to raise their world prices, driven in part by the Prebisch-Singer argument that demand for commodities was income inelastic and that the terms of trade for commodity exporters would therefore decline over time as countries grow richer. Much of the concern in the 1970s about price levels appears to have been based on the view that high rates of technological change were driving down prices and therefore creating problems for producers—a concern that seems surprising when one recalls that productivity growth lowers production costs.<sup>8</sup> Typically, they were coupled with buffer stock arrangements intended to stabilize prices in the short term. Production and export quotas created serious problems of allocating and enforcing quotas, given strong incentives to cheat on reduction commitments. The buffer stocks proved much more difficult to use for price stabilization, given declining prices for most of the period, with excessive accumulation of stocks almost invariably occurring at some stage. These agreements were introduced for a wide range of commodities, including coffee, cocoa, rubber and sugar. As discussed by Williams and Wright (1991), the buffer stock elements of these schemes frequently suffered from explosive accumulation of

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<sup>7</sup> See Bown (2011) for recent analyses of the use of contingent protection by different jurisdictions.

<sup>8</sup> The effect of technical change on producer profits depends on the nature of the technical change and that, with some types of technical change, producer gains from cost reduction may be less than the losses resulting from price declines (Martin and Alston, 1997; Ivanic and Martin 2010).

stocks and all schemes of this type ultimately failed, as did similar schemes such as the Reserve Price scheme for wool in Australia.

Subsidies have been used extensively to support farmers in OECD countries. While output-based subsidies distort production, research suggests they have a much smaller impact on world prices than border measures. Hoekman, Ng and Olarreaga (2004) and Anderson, Martin and Valenzuela (2006) estimate that border barriers accounted for 80-90 percent of the impact on world prices and thus welfare. Subsidies expand domestic production in the process reducing imports by lowering the cost (price) of domestic output. In the absence of border barriers the effect of a production subsidy to domestic producers is to expand output by raising returns per unit of output. While imports fall, absent border measures domestic prices are unaffected, as is total domestic consumption, so there is no consumer deadweight loss. Border protection on imports is also important for the potential magnitude of any export subsidies. Export subsidies that seek to raise the domestic price above import parity plus the tariff will likely be unsuccessful in doing so.

An important difference that characterizes political economy from terms-of-trade motivated trade policy and related interventions in commodity markets is that in the case of the former the probability that intervention raises national welfare is lower than for the latter.<sup>9</sup> Whatever the motivation, the interventions are likely to generate negative spillovers for other countries, giving rise to an incentive to cooperate and negotiate reciprocally binding disciplines on the use of specific policies. However, as the terms-of-trade changes that result from large countries restricting exports or imports can generate benefits to an individual country, it will be necessary that any such cooperation compensates countries for the welfare losses they will incur by revoking their ability to impose the externality. In principle, international agreement can improve on the initial welfare of countries with the ability to affect their terms of trade (Bagwell and Staiger 2011).<sup>10</sup> If policies are driven by political-economy motivations it may be the case

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<sup>9</sup> Although from a global point of view, improvements in the terms of trade are purely transfers, and removal of these barriers generally increases world income by reducing the efficiency costs of these distortions.

<sup>10</sup> Unfortunately for those seeking to analyze the implications of trade reforms and inform the negotiating process, the distribution of these gains may be uneven. It is necessary to take into account the distribution of net gains for a complete assessment of the gains from any reform. Further, the gains from exploitation of terms of trade are national, rather than global, with international trade negotiations one approach to improving on the sub-optimal global equilibrium that may result from individual countries seeking to maximize their terms of trade.

that unilateral reforms offer the possibility of attaining the underlying objective at less cost to society.

### **1.1. Agricultural markets**

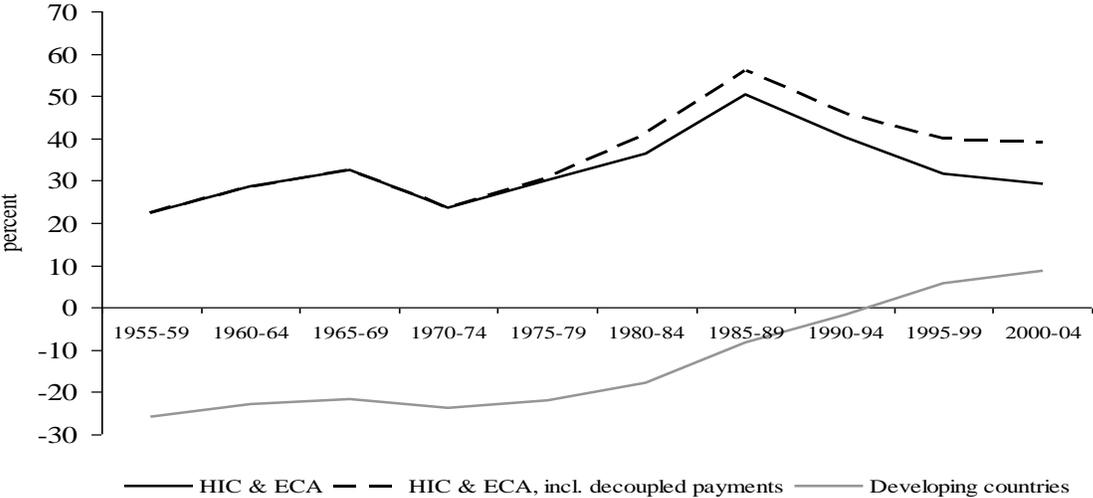
For a number of reasons, many agricultural commodities tend to be protected relatively heavily in the industrial countries. These reasons include: (i) that food tends to be a small share of the consumption expenditures of consumers in these countries; (ii) that many agricultural commodities are final goods, for which there is little countervailing pressure from organized using industries (other than processors who can pass on the higher costs); (iii) the number of farmers tends to be relatively small in high-income countries, making it relatively easy for them to coordinate in order to apply political pressure; and (iv) that farmers in these countries are commercially-oriented, selling virtually all of their output, and using substantial amounts of purchased intermediate inputs—creating leverage between their output prices and their net returns.

Historically, agricultural products in developing countries have tended to be taxed, for reasons that are the obverse of those applying in the high income countries. These include: (i) the fact that food expenditures are frequently a large share of the income of most people; (ii) that the number of farmers tends to be large, making it hard for them to organize politically; (iii) that urban consumers are a relatively small group, able to organize on an issue like food prices; (iv) that farmers are mainly subsistence-oriented—selling only part of their output and using relatively few intermediate inputs. In some developing countries, taxation of agricultural exports has historically been an important source of revenues, one that was particularly important before the emergence of the value-added tax.

A recent comprehensive study of agricultural distortions led by Kym Anderson (2009) shows that agricultural distortions in the industrial countries generally remain large, although there are signs that they may have begun to decline from their high levels in the mid-1980s. This is particularly the case when we consider the protection that is not decoupled from output decisions. In developing countries, the average rate of taxation of agriculture has declined sharply, as shown in Figure 1, and switched to modestly positive assistance. The changes in these rates of assistance reflect a dramatic sea-change in the pattern of agricultural distortions in developing countries, perhaps related to the high rates of economic growth in developing

countries in the latter period of the sample, and the sharp shift away from dependence on exports of commodities towards reliance on exports of manufactures.

**Figure 1. Average nominal rates of assistance to agriculture, five year averages 1955-2004**

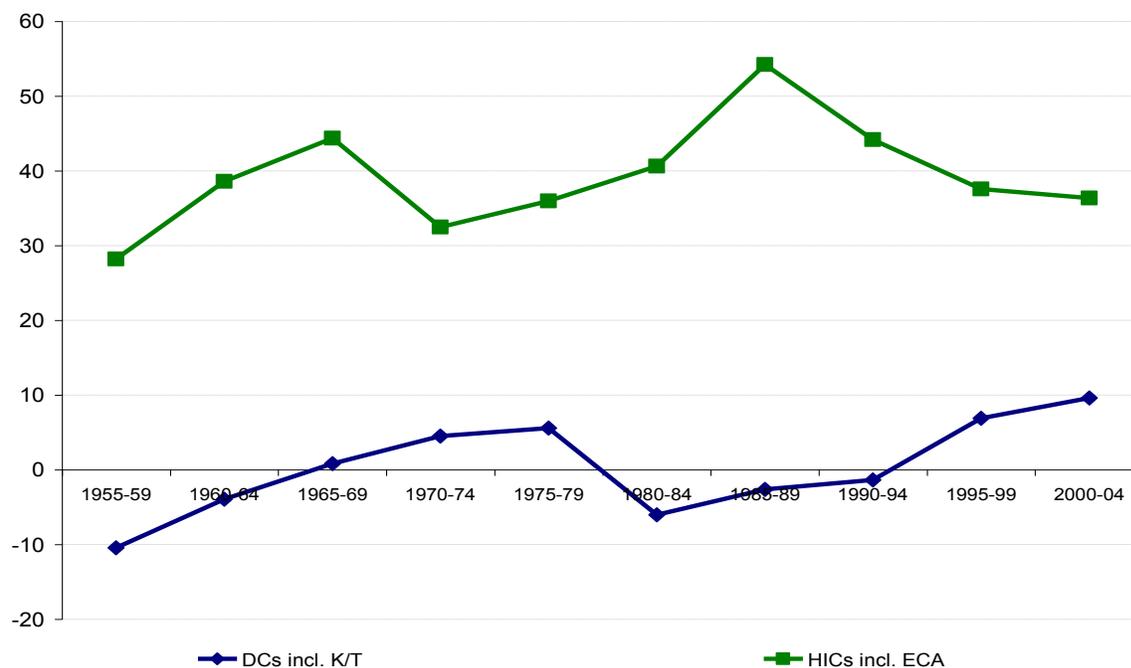


Source: [www.worldbank.org/agdistortions](http://www.worldbank.org/agdistortions)

The extent of taxation of developing countries in the early period of the sample is understated by the data on nominal rates of assistance presented in Figure 1, as the agricultural sector was also taxed indirectly by the protection provided to the non-agricultural sector. This raised input costs both directly through increases in the price of inputs, and indirectly through increases in the prices of nontraded goods and wages—the so-called real exchange appreciation resulting from protection. The full extent of the taxation of developing-country agriculture is shown using the Relative Rate of Assistance in Figure 2. This shows that a very large share of the reduction in the total burden of taxation of agriculture reflects reductions in the protection provided to other sectors. Sub-Saharan Africa is today the only developing country region where farmers still confront net taxation relative to other sectors. Matters are made worse because of weaknesses in infrastructure, inefficient logistics, etc. that result in high transport-related costs, reduce the pass-through of world market prices, and therefore the extent to which higher prices

benefit rural communities.<sup>11</sup> Prevailing market structures, including market power in downstream segments of the production/value chain may also weaken the link between world and local farm gate prices for farmers, especially in developing countries.<sup>12</sup>

**Figure 2. The Relative Rate of Assistance to Developing-Country Agriculture, %.**



*Source:* Anderson (2009) and [www.worldbank.org/agdistortions](http://www.worldbank.org/agdistortions)

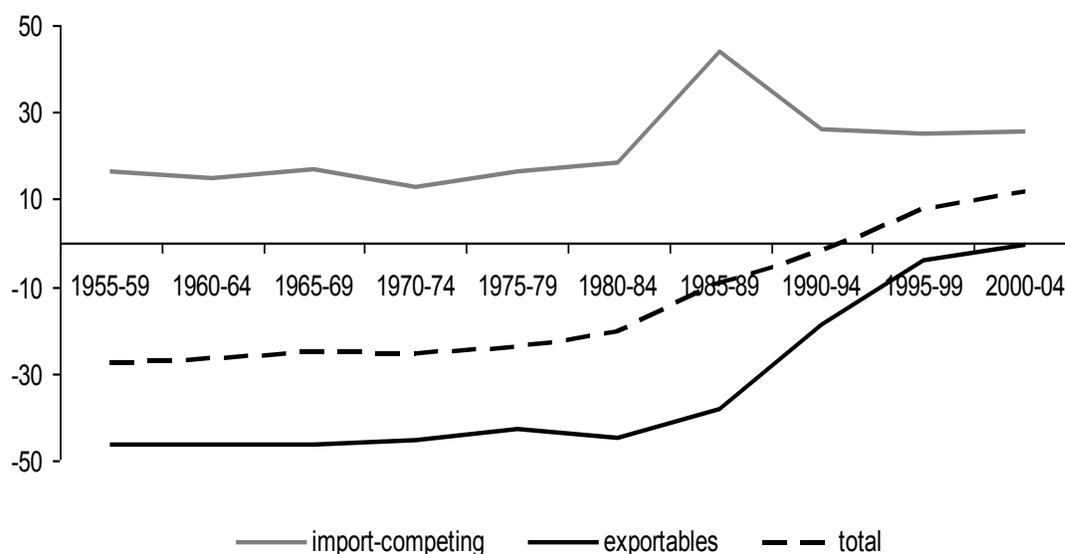
Within developing country agriculture, there is a sharp difference in the rates of protection provided to import-competing agriculture and to export-oriented agriculture, as shown in Figure 3. The almost complete elimination of taxation of agriculture has sharply reduced the cost of distortions on export-oriented agriculture in developing-countries. The rise in protection to import-competing agriculture has substantially raised the costs associated with this form of

<sup>11</sup> See, e.g., Aksoy and Hoekman (2010).

<sup>12</sup> See for example McCorrison, Sheldon and Sexton (2004), Sheldon (2006), Sexton, Sheldon, McCorrison and Wang (2007) and Porto, Chauvin and Olarreaga (2011).

protection, which is likely to be particularly costly to the poor, who spend a large share of their incomes on food.<sup>13</sup>

**Fig. 3. Nominal Rates of Assistance to Developing Country Agriculture by Trade Status, %**



Source: Five year averages from Anderson (2009) and [www.worldbank.org/agdistortions](http://www.worldbank.org/agdistortions)

Producer Support Estimates (PSEs) produced by the Organization for Economic Cooperation and Development (OECD) provide a measure of the extent to which farmers are being assisted over time by governments through various payments and price support policies. The PSE expresses the monetary value of policy-induced transfers from consumers and taxpayers to producers and can be expressed as a percentage of gross farm receipts. Support to producers in high income countries was estimated to be US\$227 billion in 2010, accounting for 18 percent of gross farm receipts – the lowest percentage on record (OECD, 2011). The changes in the levels of PSEs in 2010 were mostly driven by changes (often increases) in world prices and exchange rate movements. However, more than half of support to farmers continues to be delivered in ways that are highly distortive of trade and competition. The EU and China currently

<sup>13</sup> As is the case with any reform or price shock there will be winners and losers: winners from higher food prices include producers in poor countries. Much also depends in the longer run on the supply response to higher prices.

have the highest PSEs. Agricultural support levels have been increasing rapidly in China and are getting close to the OECD average in percentage terms (OECD, 2011).

Since September 2008, the introduction of trade restrictive measures on food has accounted for one-quarter of all new trade restrictions imposed (Gillson and Datt, 2011). A noteworthy feature of trade policy action since then has been that countries have pursued liberalization as well as protection, in an effort to lower prices for households and industries (Datt, Hoekman and Malouche, 2011). Some countries increased their tariffs on food products substantially. For example, Russia increased tariffs to 50-80 percent on imports of pigs, pork and poultry. However, far more frequent in recent years have been tariff reductions on food imports as governments tried to contain domestic price increases. Half of all food tariff reductions were on grains and sugar. Export restrictions have also been used in attempts to stabilize domestic food prices, mainly affecting grains. The most frequent users of new food trade restrictions have been emerging market economies such as Russia, India, Indonesia and China. In a sample of 58 developing countries' policy responses during the 2008 food crisis, some 40 percent lowered taxes on food; 30 percent controlled prices and/or resorted to consumer subsidies; and, 20 percent introduced export restrictions (World Bank, 2009).

In recent years analysts and policy advocates have raised concerns that changes in the supply chain and market organization of commodities may impact on commodity price levels. For example, DFID, Fox and Vorley (2004) argue that “excessive concentration within input markets (such as seeds and agrochemicals) and output markets (trading, processing, manufacturing and retailing) can work against the interests of small producers in developing countries, either by creating barriers to market entry, or by worsening the terms on which they engage in trade.” The concern is that monopoly power of providers of inputs and/or monopsony power on the part of buyers (trading companies; retailers) lower domestic farm gate prices and/or results in retail prices that are higher than they would be if the relevant markets were characterized by greater competition.<sup>14</sup>

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<sup>14</sup> The argument is summarized in a statement by the Special Rapporteur on the right to food (De Schutter, 2001), which argues that disproportionate buyer power, arising from excessive concentration of commodity buyers, food processors and retailers tends to depress prices for food, lowering incomes of farmers and wages of farm workers. See also Dodd and Asfaha (2008).

Since the 2008 food price spike, significant policy attention has been given to the question whether changing market structures and food supply chains give rise to competition concerns because of excessive concentration/market power in certain parts of the supply chain—especially “buyer power” by retailers. The EU launched a process of consultations with national competition agencies in the Union on whether and how imperfect competition in the food supply chain is prevalent, driven by perceived asymmetries in the increases and reductions of the price of food products in response to changes in the world price of major agricultural commodities. The results of this consultation are summarized in EU (2009). Despite high concentration ratios at the retail level in many countries, the degree of competition was found to be intense, and no national competition authority saw a need for (or had taken) action against retailers for taking part in horizontal anti-competitive agreements or engaging in abuse of dominance.

While large retailers have buying power, in practice this is used in part to counteract the market power of major multinational food companies with strong brands. Insofar as retailers use their market power to bargain for better prices from suppliers that also have market power (the multinationals), the battle is over the distribution of rents.<sup>15</sup> Market power at any stage of the value chain can be expected to affect the distribution of the rents that accrue to the agents that are involved in the chain. Thus buyer power by retailers can be used to extract any rents from upstream producers—be they multinationals, wholesalers or farmers. However, while such rent shifting/extraction is obviously a matter that may be a policy concern and may motivate actions by either the upstream producers or the government to affect their distribution, from a competition (national welfare) perspective what matters is whether the exercise of buyer power results in higher consumer retail prices. If the effect is to lower final prices, independent of the effects on upstream prices (profits), there is not a problem from a competition perspective—to the contrary.

Much depends therefore on whether exercise of market power along the value chain is likely to increase downstream prices. The exercise of monopsony power can be detrimental in this regard if it involves buying less from input suppliers (so as to reduce input prices paid), with the result that output available for downstream consumers is reduced, thereby generating higher prices. More generally, any cost savings may not be passed on to consumers. For this to occur

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<sup>15</sup> EU (2009) notes that in 2006, the average net profit margins of European retailers were around 4% as compared to margins for The Coca-Cola Company and Group Danone of some 20% and 11%, respectively.

however there needs to be limited competition or significant barriers to entry, while as noted, the retail sector is characterized by very vigorous price competition.<sup>16</sup> The type of bilateral bargaining that occurs between large retailers and large producers of processed foods (multinationals) is unlikely to reduce output – in fact it may increase it by inducing suppliers to compensate for lower prices by producing more (OECD, 2008).

The focus of competition policy enforcement is on consumer welfare of the country concerned (or the European Union in the case of the EU). Agencies do not have any scope to consider the effects of actions by firms on consumers in foreign markets outside their jurisdiction. That the operation of value chains might result in intense price pressure on farmers in developing countries is not a matter of concern to competition agencies in importing countries. It may provide a justification for a case to be brought by competition authorities in the country that produces the commodities concerned – e.g., if processors impose onerous conditions on farmers, foreclose markets, etc. In practice a noncompetitive market structure along the production chain can have adverse price consequences for farmers. The absence of effective competition authorities in a country may result in lower output and investment by producers and raise prices for consumers.

In many developing countries producers are smallholders who depend on a small number of buyers that have market power (oligopsony) and are thus able to extract some of the surplus that the export market generates. Porto et al. (2011) find that greater competition among processors in a sample of African countries and export crops would benefit farmers by increasing farm gate prices. Matters are complicated however by the fact that buyers often also provide ancillary services and working capital (e.g., seeds). Pervasive market failures such as lack of access to credit mean that in practice processors may provide inputs to farmers in return for agreement to buy their harvest at a negotiated price. Given weak capacity to enforce contracts through the legal system, the feasibility of such arrangements may depend on the buyers having some market power. Porto et al. (2011) conclude that if such constraints (market failures) are taken into account, the benefits of greater competition are reduced, but the reductions relative to

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<sup>16</sup> One potential concern would be if the exercise of monopsony power lowers retail prices to such an extent that it forces competitors out of the market, allowing the surviving firm(s) to subsequently raise prices. As in the case of predation, the likelihood of such a scenario depends on the contestability of the market (which depends on factors such as how high entry and other fixed costs are). See Carstensen (2008) for a discussion of several antitrust cases that were brought in the US that involve allegations of anticompetitive effects from the exercise of buyer power.

a benchmark without market failures are generally small. However there are exceptions, indicating that careful analysis is needed of the operation of a given market in a country.<sup>17</sup>

## 1.2 Natural resource markets

As is true for agricultural markets, governments have a long history of intervening in markets for natural resources, both renewables and non-renewables. Contrary to policies that affect agriculture – where import protection has tended to dominate – in the case of natural resources the focus has been much more on export restrictions. Protection rates on imported non-agricultural commodities tend to be relatively low because many of these commodities are intermediate inputs, for which powerful user industries apply pressure against high rates of protection. On the export side, numerous countries have intervened on export markets in an effort either to raise export prices or to support specific industries. Export restrictions are sometimes also justified on environmental grounds, although any measures targeted efficiently to environmental problems would generally target production or consumption, rather than exports. Data reported in WTO (2010) suggest that it is mostly developing countries implement export restrictions. Export taxes on natural resources account for about one-third of all export taxes imposed—some 11 percent of world trade in natural resources is covered by such taxes, with timber, iron, copper, pearls and gemstones being among the most frequently affected.<sup>18</sup>

Although export restrictions are more frequently observed than import protection, the underlying motivations have been very similar, either exploiting market power (terms of trade) and or political economy/industrial policy—an effort to subsidize/tax certain industries or activities. In cases where a country does not have the ability to affect its terms of trade, the objective underlying the use of export restrictions is frequently to subsidize the domestic processing or another downstream industry by providing it with access at less than world market prices. Such support to specific industries may also be granted through direct subsidies or tax concessions. Many energy producers subsidize domestic consumption by charging nationals

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<sup>17</sup> See Delpuech and Leblois (2011) for a recent example of such analysis.

<sup>18</sup> Export restrictions on natural resource products accounted for one-third of the 7,328 notified export restrictions in the time period covered by WTO (2010).

below world market prices (e.g., the Russian gas example analyzed by Tarr, 2010). A key result is generally resource misallocation.

OPEC is of course the longest-standing example of an effort among producers to restrict/manage supply with a view to raising the level of the world oil price, using production quotas as a means to reduce output and stabilize prices. International agreements among producers to use export and production restrictions proved to be very difficult for virtually all other commodities (Raffaelli 1995) because of conflicts between suppliers, and the emergence of new suppliers who—quite rationally—preferred to free-ride on any price-enhancing supply or export restrictions imposed by existing suppliers. OPEC has proved more successful than the other commodity agreements for several reasons, including: (i) a relatively small number of major exporters; and (ii) that oil can be stored much more easily and economically than many other commodities—including simply by leaving more of it in the ground. While the specific instrument used to restrict output is a production quota, the frequent coupling of this measure with low consumer prices makes the policies of many producers more nearly analogous to an export tax regime. Importing countries have responded to the formation of OPEC through the imposition of “countervailing” taxes so as to ensure that some of the rents that are created by the resulting increase in global oil prices accrue to them.

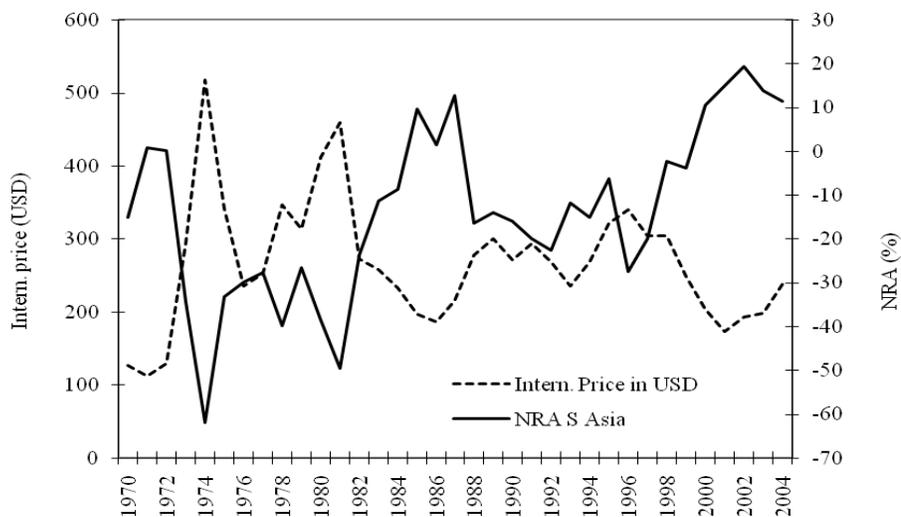
As noted by Collier and Venables (2010), natural resource markets have a number of distinct features including the fixed location of resource endowments, the presence of resource rents (which can be large if world prices are far above marginal cost, which they often are), the finiteness of resource stocks, and that for some countries natural resources account for the lion’s share of economic activity. National policies may generate not only current distortions but will also affect the market in the longer run—e.g., by determining incentives to develop and extract resources. Inappropriate policies may result in the inefficient allocation of exploration and production rights, excessive risks, and sub-optimal levels of exploration and development. They also note that imperfect competition, which generally implies a constant markup over marginal costs, is unlikely to create market distortions in the case of timing of exploitation of a natural resource, whose optimal path of exploitation generally involves a markup over marginal extraction costs.

## 2. Measures Affecting the Volatility of Prices

For a number of staple food commodities, many governments intervene in an attempt to reduce the volatility of domestic prices relative to world prices. In poor countries, this reflects the sensitivity of consumers and governments to volatile prices for important staple goods. Such measures can be shown to be a logical measure for individual poor countries concerned about the adverse impacts of high prices of staple foods on poor consumers (Gouel and Jean 2011).

Historically, such policies have also been extensively used in high-income countries as well in an attempt to stabilize domestic prices. In Europe, the variable import levies used by the European Union were explicitly designed to stabilize domestic prices in the face of variations in domestic prices.

**Figure 4. The relationship between world prices and protection rates, South Asia rice %**

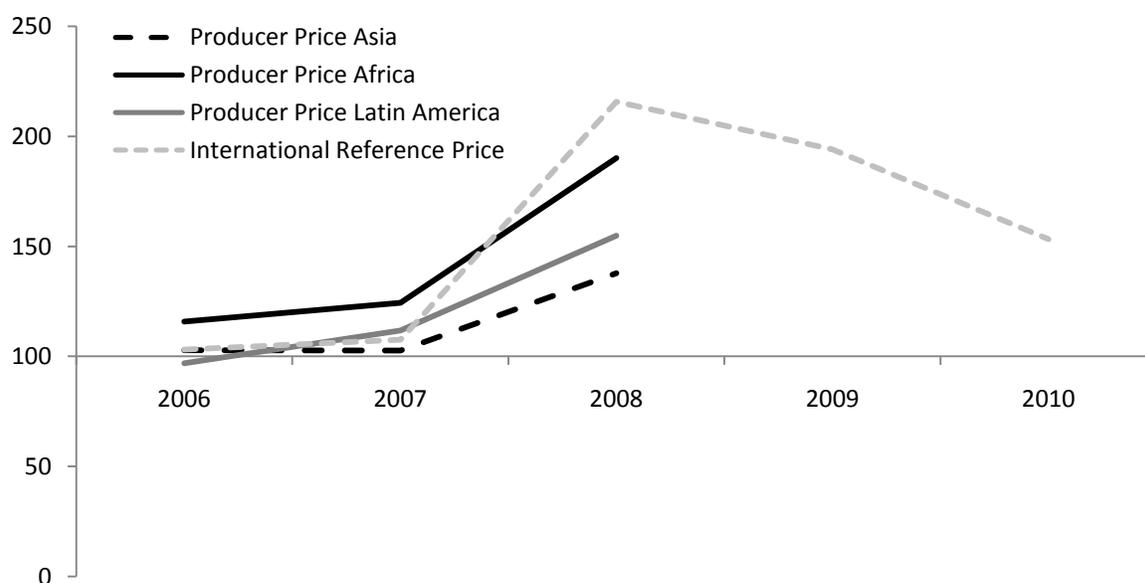


These policies are heavily used for key staples such as rice and wheat and result in a strong negative correlation for these commodities between real world prices and the nominal rate of assistance, as shown in Figure 4 for South Asia. While this can certainly help countries reduce the volatility of their domestic prices relative to world prices, there remains a serious collective-action problem. When many countries use this approach to stabilize their domestic prices relative to world prices, world prices become much more volatile. Price insulation cannot reduce the volatility of domestic prices, but only redistribute it between countries (see Martin and

Anderson 2012). It is possible that such a set of interventions would lower the impacts of high prices on poverty by lowering prices in the countries where high prices have the greatest adverse impact on poverty. However, there is no guarantee that this would be the case. When, for instance, the EU used variable import levies to stabilize its domestic prices, this resulted in instability being exported to the rest of the world by some of the richest countries in the world. In the presence of this collective-action problem, only a policy that takes into account these interactions can reduce volatility without creating the beggar-thy-neighbor problem inherent in this type of policy response.

When Martin and Anderson (2012) investigated the implications of countries' responses to the price surges for wheat and rice in 2008, they found that almost half the increase in the world price of rice could be explained by countries' attempts to insulate themselves from the primary shocks causing the world price of rice to rise. While some low and middle income countries were relatively successful in insulating themselves against the increases in world prices, domestic prices in low income countries in Africa rose almost as much as world prices did, suggesting that price volatility in many African countries may have been greater given insulating policies than it would have been otherwise—see Figure 5.

**Figure 5. Domestic and international price changes for rice, 2006-10 %**



Source: Martin and Anderson (2012)

### 3. Rule-making Implications and Priorities

Many, if not most, of the policies that restrict agricultural imports are already the subject of WTO rules or are on the Doha negotiating table. Since its inception as the GATT in 1947, the multilateral trading system has focused on import barriers, with the twin objectives of reducing these barriers and making them less variable. If countries can be persuaded to lower their import barriers on a reciprocal basis, then it may be possible to make all of them better off. The GATT/WTO approach tries to lower protection and to make it less volatile by introducing comprehensive limits (bindings) on import barriers. WTO disciplines are much less comprehensive when it comes to policies used to raise the price of exports, and there are no rules regarding what can be done to contest the cross-border effects of actions by firms that influence the level of prices of what they buy or sell internationally.

The GATT/WTO is usually seen as an institution that facilitates the identification and implementation of cooperative solutions to reduce the adverse impacts on other participants in the trading system of unilaterally chosen policies. The key problem with unilateral policies is the costs they impose on trading partners through deterioration in their terms-of-trade or excessive volatility. Limits on both import protection and export taxation/restrictions can reduce such adverse terms of trade effects as well as distortions to production incentives that make the world market more susceptible to price shocks.

The asymmetry in disciplines on import policies compared to export policies in the GATT/WTO has often been remarked upon (see, e.g., Hoekman and Kostecki, 2009 and references cited there). The incompleteness of the GATT contract on the export side may reflect the fact that a good part of the political support for the GATT/WTO as an institution comes from mercantilist thinking. From a mercantilist perspective, a competing supplier country introducing export barriers becomes a less effective competitor, creating greater opportunities for home firms to export. If other WTO members are also motivated by mercantilist goals, they will be loath to introduce export barriers, which have a direct, adverse impact on export success. Perhaps as a result, there are few restrictions on the use of export taxes in the GATT and the disciplines on quantitative export restrictions are not comprehensive.

The recent upsurge in the use of export barriers suggests that the general mercantilist reluctance to restrict trade cannot be taken for granted when world prices of food rise, or when there is a significant increase in global demand for scarce natural resources. In this situation, many governments may place a higher weight on the welfare of consumers and downstream industries than on the welfare of upstream producer interests (farmers, miners, etc.) when deciding whether to use export restrictions or taxes. The likelihood of more frequent use of export restrictions may rise as emerging markets continue to experience high rates of economic growth and this generates greater demand for meat and dairy products and for raw materials.

Article XI of the GATT prohibits the use of quantitative restrictions, whether on imports or on exports. However, it allows for quantitative restrictions on trade in agricultural commodities if concurrent measures are also taken to restrict domestic production. Moreover, Art. XI:2(a) permits temporary restrictions to prevent critical shortages of food or other goods. This exception appears to have been interpreted relatively broadly in justifying the application or threat of export barriers, in cases such as the US proposal for an export ban on soybeans in 1973.<sup>19</sup> Article 12 of the Agreement on Agriculture (WTO 1995, p. 51) requires that developed members and net-exporting developing-country members introducing export restrictions under this provision take into account the implications for importing members' food security, and to notify the Committee on Agriculture, preferably in advance. However, it appears that this has rarely been done—the most recent notification is reportedly from Hungary in 1997 (Gamberoni and Newfarmer, 2008).

Not all WTO members have been happy with the absence of effective disciplines on export barriers. Countries depending heavily on the world market for food worry they might be vulnerable to export controls or taxes imposed by their suppliers. Not surprisingly, such countries have pushed for disciplines on export controls and taxes (Congo 2001, Japan 2000, Jordan 2001, Korea 2001 and Switzerland 2000). Some of these proposals were far reaching: for example, the Jordan proposal was to ban export restrictions and bind all export taxes at zero. The proposal by Japan involved disciplines similar to those on the import side, with export restrictions to be replaced by taxes and export taxes to be bound. Recognizing that importers' concerns about the reliability of supply might inhibit liberalization, some exporting countries

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<sup>19</sup> In the recent WTO dispute concerning export restrictions on basic materials brought against China the panel rejected the argument that the measures could be justified under this provision.

have also advocated multilateral restrictions on the right to use export restrictions. In the preliminary negotiations on agriculture held between 1999 and 2001 under Article 20 of the Uruguay Round Agreement on agriculture, the Cairns Group (2000) and the United States (2000) put forward proposals for disciplines on export barriers and/or taxes.

These proposals languished for a long time in the Doha negotiations on agriculture. The Doha Ministerial declaration (WTO 2001) that provided the framework for the negotiations did not discuss the issue of disciplines on export taxes or restrictions. Similarly, the Framework Agreement (WTO 2004) mentioned the issue only in very general terms. However, the draft Modalities of May 2008 (WTO 2008b) included some quite specific disciplines on the use of export prohibitions and restrictions under Article XI.2(a). In particular, existing restrictions would be eliminated by the end of the first year of the implementation period, and members would be required to notify and provide reasons for any new measures within 90 days of their invocation. In April 2008, Japan and Switzerland (2008) proposed incorporating stronger disciplines on the use of export restrictions in the WTO.

Fears of inadequate access to supplies in resources-scarce countries and of inappropriate exploitation in resource-rich regions have significant potential to generate trade conflicts and create negative spillovers for the world as a whole (WTO, 2010). Responses by importers to actions by exporters to restrict supply – whether the government does so directly through a tax or other type of policy, or allows firms based in its jurisdiction to exploit their market power in foreign markets (through an export cartel for example) – may result in some of the rents being shifted from exporters to importers, but the net result for world welfare is negative. The negotiating agenda here is rather straightforward and revolves around agreeing on a ban on export quotas and on binding commitments on export taxes and equivalent disciplines on export cartels.

Given that countries that have the ability to set prices have an incentive to do so, affected trading partners will have to be willing to engage in quid pro quo negotiations and offer concessions to the countries that currently benefit from being able to impose export restrictions. In principle this is of course exactly what the WTO is set up to do. The challenge is to design a negotiating agenda out of which Pareto-improving deals can be constructed. Despite the difficulty in concluding the Doha Round – which in part is arguably a result of a negotiating

agenda that does not offer enough in the way of potential Pareto-improving deals – the history of negotiations under the GATT indicates that this is a challenge that can be met.

As noted by WTO (2010) efforts to agree to rules and commitments on the use of export taxes (and export cartels) affecting natural resource products should extend to seeking agreement on what is permissible and desirable from the perspective of reducing greenhouse gas emissions and sustainable development. Governments are employing a wide array of instruments that aim to “green” production, including direct subsidies (e.g., for alternative fuels) and tax concessions of different kinds, as well as indirect taxes on consumption (e.g., on gasoline).<sup>20</sup> Such domestic policies can also substitute for and have the same effects as trade measures so that agreement on the use of such policies are also beneficial from the perspective of reducing the potential for disputes. Recent WTO disputes brought against China and Canada are illustrative. While the panel in the case on Chinese export restrictions ruled that export taxes and other restrictions for basic industrial materials such bauxite, coke, and zinc could not be justified on grounds of safeguarding the environment (because they were not applied to domestic producers (which could have been achieved by a general restriction on production/extraction) and were not essential products for which there is a critical shortage (which may justify quantitative restrictions under GATT Article XI), clarifying what is and what is not allowed to achieve national environmental objectives is clearly important.<sup>21</sup>

Imperfect competition, market power, and high levels of concentration characterize some commodities markets and may result in price distortions. At the national level competition policy and/or regulation is the appropriate instrument to address uncompetitive behavior that may result in distorted pricing. From a global rule-making perspective the question is what international cooperation can do to address the cross-border negative spillovers that are created

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<sup>20</sup> Policies to stimulate the use of biofuels are a good example. Domestic subsidies; tax credits or mandates for the use of particular types of biofuels are generally consistent with GATT rules. Protection measures designed to encourage the use of domestically produced biofuels are subject to WTO rules on binding of tariffs and other duties and charges, and would normally be expected to be subject to reductions in protection under the Doha Agenda negotiations through lowering agricultural (ethanol) or non-agricultural (biodiesel) tariffs. One surprising feature of the Doha negotiations is that the protection of ethanol—which diverts the sourcing of ethanol from lowest-cost international sourcing to reliance on domestically-produced maize—was not subject to significant proposed tariff reductions because almost all of this protection is provided by a measure classified as an Other Duty and Charge.

<sup>21</sup> China was subject to stricter rules on export restrictions than apply to other WTO members as it made specific commitments not to use such policies in its accession protocol, which the panel argued invalidated China’s ability to invoke the general exceptions clause of the WTO (Art. XX). The case illustrates that even if rules are agreed it will also be necessary to define when what may be regarded as “substitute” policy instruments are in fact permissible.

by the behavior of firms located in a foreign country (or, in the case of multinationals, that are subject to multiple jurisdictions). As discussed above, “competition issues” may arise in the operation of both food and non-food commodity markets, but are more likely in the case of natural resources because production and/or exports of such resources often involves a relatively small number of large firms (many of which may also have strong links to the state). Some markets – most notably for oil—are effectively cartelized. Market power and oligopoly have a number of implications, including possible foreclosure of markets for more efficient foreign producers. Also important in terms of welfare impacts is likely to be political uncertainty and risk that precludes efficient investment and generates inefficient forms of trade (Collier and Venables, 2010; WTO, 2010).

Competition policy was one of the three Singapore issues suggested for negotiation at the 1996 WTO Ministerial Meeting that eventually were taken off the table at the 2003 Cancun ministerial. Hoekman and Saggi (2006) argue that one reason was that the focus of discussions and potential negotiations were not clearly on negative spillovers or market access constraints associated with a set of policies. Instead most of the deliberations revolved around competition policy per se and the benefits of adopting such policies—something that can and has been implemented by countries autonomously. Most proposals stressed national enforcement-related disciplines, including as a mechanism through which to deal with the effects of international cartels (including export cartels). International cooperation to address negative spillovers caused by national competition policy enforcement was to be on a voluntary basis.

Arguably any effort to negotiate rules of a competition policy nature must address situations that involve private sector behavior that gives rise to cross-border negative externalities. Antitrust exemptions for export cartels are an obvious example (Hoekman and Saggi, 2007), as are international cartels. The latter are already subject to national antitrust law. A number of major cases in recent years against global cartels connected with the food industry have illustrated the importance of active enforcement and international cooperation between competition authorities.<sup>22</sup> As regards export cartels, a distinction should be made between cartels that involve States and cartels of private firms. The former may be an efficient mechanism if the product concerned is a non-renewable natural resource (Collier and Venables 2010). In any

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<sup>22</sup> See e.g., Connor (2000), Bolotova, Connor and Miller (2005; 2008) and Connor and Helmers (2006).

event, it is unlikely that any effort to declare such arrangements illegal will be feasible to negotiate given that for many of the producing countries the natural resources represent a major source of national wealth.

In many of the areas that are sometimes mentioned as potentially giving rise to competition concerns there is significant uncertainty/ambiguity whether a practice, level of market concentration, prevailing market structure, etc. should be of concern i.e., affects price levels or generates excessive volatility. The discussion about the effects of monopsony power of large retailers and supermarkets is an example. This suggests a first priority is to compile much better data and to undertake a concerted effort to identify negative cross-border spillovers and analyze whether these should be accepted (as in the case of cooperation between countries in the case of non-renewable natural resources such as oil). Thus, greater transparency and analysis should be part of any forward-looking program of work in the WTO.

What matters most? Import protection? Export restrictions? Private restrictive business practices? The agenda on import protection is well understood and is already squarely on the agenda of the WTO and on the table in Doha. Making progress in further disciplining the scope to use import barriers is important – the estimated welfare gains from lowering applied levels of protection and bringing down tariff bindings are significant. But extending the effort to agree on disciplines on export restrictions is equally important, not least because the current greater ability of countries to use export restrictions is likely to have a direct bearing on the willingness of many importing countries to accept greater disciplines on their freedom to use import policies to support an increase in domestic production. An immediate priority is to agree on a code of conduct to exempt food aid from export restrictions.

Of particular importance in moving forward to negotiate disciplines on export restrictions is to apply the approach to rule-making that is already embedded in the WTO: to prefer instruments that are based on the price system over those that constrain quantities. Disciplines in the WTO today have greater bite on quantitative restrictions on exports than on the use of export taxes. From an efficiency and transparency perspective this is positive feature of the status quo. It suggests an approach that involves a process of negotiating commitments (bindings) on export taxes while strengthening the disciplines on the use of quantitative limitations. The data that were summarized previously on the trends in agricultural policies reveal that the level of export

taxation today in many developing countries is far less than it was several decades ago. This suggests that an important service the WTO can provide to these countries is to act as a mechanism to lock in the current situation. While much media attention has been devoted to the use of export measures for rare earths and other industrial material inputs, it is important to recognize that the use of export taxation was much more prevalent in the past – suggesting that there is also scope for a reversal of this trend.

Recent developments illustrate that the countries are making greater use of export restrictions (Datt, Hoekman and Malouche, 2011). The Global Trade Alert initiative has documented an increasing number of cases of developing countries putting in place new restrictions (Evenett, 2011). The increasing use of export restrictions by more advanced developing countries is worrisome (Gillson and Datt, 2011). Winters (2011) argues that efforts to negotiate disciplines on export restrictions need to recognize that governments are unlikely to accept binding restrictions on export taxes if this precludes them from taking action in “emergency” situations. He therefore suggests negotiations to cap export taxes be complemented with a safeguard-type analogue that imposes a process and procedures under which taxes can be raised above caps for a limited period of time. Criteria would need to be agreed on what types of events could trigger the safeguards, procedures agreed on verifying whether the criteria are satisfied, and mechanisms put in place that would help governments to manage the political economy. As is the case for import safeguard procedures or antidumping, agreement on criteria for invoking the mechanism would not only enhance transparency but remove the threat of tit-for-tat retaliation.

At the end of the day the WTO is an incomplete contract and will remain one. In practice there will always be ways in which a government can change the relative magnitude of support or taxation for some industries. This suggests that the focus should be on the policies that are most detrimental – impose the largest negative spillovers on trading partners. Economic first principles suggest that these will be quantitative restrictions, not tax or price-based measures. But export taxes and restrictions are more pernicious than import tariffs because of the associated negative spillovers for the trading system in terms of greater volatility and the systemic costs of creating incentives for affected countries to “self-insure” by taking actions to increase their self-sufficiency.

#### 4. Concluding Remarks

The current crisis illustrates how the world can end up with a set of policies that generate large distortions on global commodity markets. Under normal agricultural conditions there are already major distortions in terms of costly taxpayer support to reduce imports and encourage production and exports. Under abnormal global market conditions, such as those in 2007–8 and 2010–11, exporters restrict exports while importers stimulate them through cuts in border protection. To a large degree, these attempts at insulating domestic prices from world price shocks are offset by the increases in world prices they create.

What is needed is a system where both imports and exports remain free to flow in good times and bad. This is especially important if trade is to remain a reliable avenue for food security. If in bad times, importing countries are subject to the export-restricting actions of producing countries, they will consider trade an unreliable way of maintaining food security and will reconsider how to manage their agriculture; there will be a greater temptation to move toward more self-reliance as insurance against the bad times. And, if in good times, exporting countries cannot have access to markets because of import barriers and other subsidies, they will be reluctant to give up the right to restrict exports during bad times.

Unfortunately, the ongoing Doha Round of trade negotiations as currently configured will not fully address these problems. The Round has focused primarily on traditional forms of agricultural protection: trade barriers in the importing countries and subsidies to food production in high-income producing countries. While lowering bound tariffs will help reduce the destabilizing effects of insulating trade barriers, proposals to expand the use of safeguard measures could increase the variability of world prices. Proposals put forward in the Doha negotiations do contain some potentially valuable disciplines on the use of export restrictions that might help diminish their destabilizing impacts. Measures to reduce barriers to trade in environmental goods such as ethanol could also be important, although the fact that ethanol tariffs were effectively excluded from the negotiations on agricultural and non-agricultural tariffs means that protection on this product would need to be explicitly included if progress is to be made in reducing this distortion.

Even in the event of a successful Doha Agenda negotiation, much more will remain to be done to discipline the use of policies that may both affect the level of prices and augment

instability. Further attention will need to be given to enhancement of WTO disciplines on export restrictions. Export restrictions tend to (1) distort prices and the allocation of resources, therefore impeding investment and the supply-side response; (2) prevent local farmers from receiving the higher world market price for their production; (3) displace local production to crops that are not subject to export restrictions, therefore aggravating food security and price concerns; and (4) exacerbate the rise and fluctuations of global food prices, therefore creating a vicious incentive for trading partners to follow suit, curb exports, and hoard. As if not more important, by signaling that global markets cannot be relied upon to function, export controls create incentives for importing countries to subsidize domestic production, resist binding commitments on the level of import protection/domestic support and more generally emulate the types of policies that have been pursued in many high-income OECD countries for agriculture.

Export restrictions can help stabilize domestic prices in the exporting country but may do so at significant cost in terms of greater world price volatility and higher average prices for net importers. As trade liberalization generally takes a long period of time to be negotiated and implemented, there is in principle ample opportunity for governments to develop or strengthen safety-net programs and complementary policies to maintain real incomes of the poor. Such time does not exist in instances where there are acute shortages that are exacerbated by beggar thy neighbor export restrictions. But in such situations international trade policy rules, with their emphasis on imposing maximum barriers on tariffs are irrelevant for net importing countries – governments will likely want to lower tariffs, not raise them.

The food price increases that occurred in 2007-08 – and the response by food exporters – revealed that an exclusive focus on liberalization on the import side and reducing domestic support is too narrow. Export restrictions and export taxes need to be on the WTO negotiating agenda. Current disciplines are weak – Art. XI GATT is permissive for agriculture export restraints, and export taxes are unconstrained. We have argued that there is a good case to focus attention first on strengthening the ban on the use of quantitative restrictions in Art. XI by making this unconditional, and on disciplining the scope to use export taxes through negotiating specific bindings, analogous to what has been done for import tariffs. As outlined in some policy proposals to WTO, such disciplines might incorporate negotiable restrictions on export barriers related to increases in world prices—a type of discipline on price insulation that has not featured in WTO measures for export restrictions in the past.

Effective disciplines on export restrictions require that rules extend to export cartels that are sanctioned by home country jurisdictions. Active antitrust enforcement is important to combat international cartels. While these have been less prevalent and less detrimental in food-related sectors when measured by the magnitude of overcharges than cartels in other sectors (Bolotova, Connor and Miller, 2005), the number of cartels that have been prosecuted clearly show that incentives to collude exist. Combating international cartels is largely an agenda for the major countries that have the institutional capacity to investigate and take action against the firms concerned. Much of the potential competition policy agenda is arguably at the country level. High prices of transport, logistics and other services are major sources of *de facto* taxation of farmers in developing countries, quite independent of any explicit taxes or implicit taxation resulting from a relative bias of policy against agriculture.

The importance of greater competition along the supply chain in low income countries has already been stressed. A lack of competition and the exploitation of market power in relevant domestic markets—by buyers, processors, transporters, etc. – may result in excessively high prices of inputs such as seeds, fertilizer and logistics services that lower the return to farming. Research has shown that the degree of competition on both upstream (input) and downstream market segments affects the incentives confronting farmers to invest and improve productivity. This in turn can have implications for world markets by reducing global supply and thus putting upward pressure on prices. However, the economic literature has also shown that one cannot generalize – specific circumstances matter, firms with a dominant position may provide valuable services that would otherwise not be available as a result of institutional weaknesses and market failures, and so forth. Thus, one implication for multilateral cooperation looking forward is to invest more in monitoring and analyzing the operation of commodity markets, at the national level, at the level of global value chains, and internationally.

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