

# Farm support policies that minimize global distortionary effects: A synthesis

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## Introduction

A necessary condition for global food security is adequate global food production to meet current and future food demand. Increased investment in agriculture and adequate incentives to farmers are required to meet this global challenge. During the past century many now developed countries (largely the countries of the OECD) found it necessary to support farmers in response to a variety of external and internal economic events and pressures. Such support grew and became an integral part of countries' economic policies to the point of causing considerable frictions in the trade relations between key developed countries. At the same time many such policies caused distortions in international trade that affected negatively many developing countries. This "disarray" in international agricultural trade, to use the terminology of the late D. G. Johnson, provided the motivation for an Agreement on Agriculture (AoA) during the Uruguay round of trade negotiations in the context of the then General Agreement on Trade and Tariffs (GATT) that culminated in the creation of the World Trade Organization (WTO) in 1986. The AoA specified the general rules of agricultural trade, organized the various types of farm support into categories, and placed agreed limits on the use of trade distorting support.

Most developing countries showed small interest in the AoA as many of them had not provided significant farm support or protection to their agricultural sectors. In recent years, however, several developing countries have also faced pressures to support their agricultural sectors and farmers. The recent global food price spike of

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2007-8 alerted many countries, both developed and developing ones, to the need for adequate food production in the future, and raised concerns about global food adequacy. There have been questions raised about the push towards reduction in farm support under the WTO, as this may reduce farm incentives and reduce food production. It is generally acknowledged that increased farm and food production requires adequate incentives for producers. Hence a key question is how to shape and design incentives and support to farmers in both the developed as well as the developing world while minimizing distortions to global markets.

Developed countries provide support to farmers to increase farm income, reduce income variability, improve competitiveness of the agricultural sector, and provide for safe (in terms of production processes and health) and quality food. Recently other functions of agriculture, such as environmental services, have provided additional impetus for farm support. Many farm support policies stimulate domestic production, but also create distortions in world markets, inducing disincentives in developing countries' agricultural production in the long run. These distortions have been the objective of considerable debate within the WTO agreement on agriculture (AoA), where three "boxes" have been identified (amber, blue, and green) to classify the degree of distortion of various domestic support policies, in the sense of their negative implications for trade of other countries. At the same time, developing countries are not affected uniformly by OECD policies owing to differentiated selective trade preferences between countries and heterogeneous trade positions at the country and household levels. Moreover, the global environment under which the OECD support policies operate has changed over time from endemic excess supply and falling real commodity prices to rising prices from stronger demand, driven in part by the rise of demand for biofuel feedstocks in light of the pressing need to face up to environmental impacts of climate change.

Several measures can be pursued by developing countries to mitigate the effects of distortionary farm support and stimulate agricultural production and development. Moreover, farm support in high income countries is not the only impediment to agricultural growth and poverty reduction in developing countries. Over the last 3 decades, public investments in agriculture in many developing, especially least developed, countries have declined in real terms. Since the onset of the structural adjustments in the 1980s and the policy reforms that followed under the general push towards "liberalization", many developing countries experienced a disengagement from agricultural investments and spending not matched by the private sector and the results of these reforms have been at best mixed. Frustrated by lack of progress, many developing countries have grown wary of the so called "Washington Consensus" whereby developing countries governments were advised to get out of agriculture and be replaced by the private sector. The recent food price crisis (2007-2008) jolted many complacent governments in developing countries to reverse course and commit to new investments and support toward agriculture as the concern for food security took on a high priority status. The donors and

developments agencies themselves have come around accepting the critical importance of agriculture and there has been a noticeable shift in their programs, in the last two years, with increased attention to agricultural development.

The chapter provides a review of farm support in high income countries, and discusses options for support to achieve some of the same objectives in a less distorting fashion. It also addresses non-distorting responses that could be adopted in developing countries to support farmers, ensure a long term and sustained faster growth in the agricultural sector, enhance food production and rural incomes, and lower poverty. The chapter is divided into two parts. In part one, the chapter focuses on the OECD farm support policies and their implications for market distortions in third countries. A particular focus will be given to decoupled support and the complementary policies needed to support developed countries farmers without resorting to distortionary support. Other issues examined are risk mitigation and insurance related schemes, trade and market access reform under the Doha Round, and biofuel policies.

The second part of the chapter addresses the policy responses in developing countries that address both the challenge of policy-induced market distortions as well as seeking new impetus to revive production capacity to meet the growing demand for food. Among the issues addressed in the second part are the issues of investments, trade policy, effective input subsidies, insurance and risk management schemes, and carbon offsets under climate change. Our goal is to examine the issues analytically and arrive at recommendations as the types of policies that could be least distortive in achieving a given policy objective. We draw largely from the literature and key insights from two expert meeting consultations held at FAO Rome between December 2008 and May 2009 on this topic.

## **1.1 OECD farm support and distortionary effects**

Current OECD agricultural support encourages production and discourages consumption of agricultural products within the OECD; this increases OECD agricultural net exports, reduces the volume of rest of the world net agricultural exports and tends to reduce commodity prices in world markets. Hence it reduces returns to non-OECD agricultural producers and thus inhibits investment and agricultural development. Consequently, agricultural support in OECD countries is costly and distorts international commodity markets. It also disproportionately benefits wealthier households that own large amounts of agricultural land and it raises food costs, which disproportionately reduce the real incomes of lower income households (Skully, 2009). However, agricultural support is not uniformly distorting. Concerning producer price support, a tariff causes more trade distortion than an output-based payment because the former increases production and reduces domestic consumption, while producer price support only raises production. Thus,

the tariff causes a larger reduction in imports and a larger decline in the world price of the commodity.

The overall OECD support to farming has been remarkably stable over time despite periodic reforms since the on-set of the Uruguay Round. According to OECD, from 1986-87 until 2005-07, the value of OECD agricultural production increased by 53%, while total producer support increased by 10%. The ratio of producer support to the value of production declined from 40 to 29%. Market price support and payments based on output have decreased. Combined, support based on commodity output accounted for 82% of total support in 1986-88; in 2005-07 it accounted for 55%. Consequently, the aggregate trade-distortion coefficient for OECD agricultural support declined from 0.96 in 1986 to 0.74 in 2007. Also the estimated Producer Subsidy Equivalent (PSE) for all OECD agricultural support has declined from 39% of the total value of agricultural production in 1986 to 23% in 2007 (Skully, 2009).

These slow but declining levels of distortionary policies reflect a re-instrumentation of support policies in OECD countries. In the OECD countries, support based on commodity output is the primary means of producer support, while tariffs are the predominant form of border measure. Restrictions on market access (such as tariffs) by OECD countries account for almost all – over 90% – of these distortions. Market price support and payments based on output have decreased. Also, export subsidies and foreign surplus disposal, heavily used in OECD in 1980s, are now relatively minor.

OECD farm support policies are distinguished and categorized by the “transfer basis” of support (Skully, 2009). Transfer is made on the basis of output, input use, area planted, animal numbers, receipts, income and non-commodity criteria. Overall the distribution of support across different instruments has also changed significantly over this period. Market price support and payments based on output have decreased.

### **1.1.1 Decoupled support**

Since the mid-1980s, when multilateral agricultural trade negotiations began under the Uruguay Round, many OECD countries enacted policy reforms which essentially re-instrumented the support instruments by introducing direct payments to producers. These tax-financed payments partially compensate for policy reforms such as reduced tariff protection and lesser reliance on product-specific support programs. One form of direct payment, decoupled support, has been introduced in the United States and the European Union. Decoupled direct payments are based on past, non-current, characteristics of the recipient’s farm operation and are not contingent on producing agricultural output or employing factors in agricultural production; nor are they contingent on receipts, income, or current prices. The

payments are financial transfers to individuals.

Direct payments distort output and trade, but to a lesser degree than tariff protection. Decoupled payments are introduced to replace pre-existing support policies: they represent an attempt to exit from agricultural support (Skully, 2009). They are a product of political and budgetary necessity. What recipients provide in return for decoupled support is refraining from opposing policy reform. Decoupled payments do not provide a direct incentive to produce a particular output or, indeed, any output; similarly there is no direct incentive to employ any productive factors. Decoupled payments do not yet account for a large share of OECD agricultural support but their share is increasing. From less than \$2 billion in 1986-88 this form of producer support reached \$48 billion in 2005-07 (Skully, 2009). Decoupled payments are now the second most important means of support to agricultural producers in OECD countries.

The distortionary effects of farm support are examined in the literature from the prism of their “degree” of coupling/decoupling from production and input use decisions. Payments based on area, historical entitlements, input constraints, and farm income are decoupled from current production decisions and hence have a lesser impact on production and trade. WTO defines decoupling only in the context of farm income support, but not in correcting for market failure or to provide for public goods. Decoupled payments can change with market prices, but they must be financed by taxpayers. Policies correcting for market failures or providing public goods normally affect production and need to be evaluated in terms of their being minimally trade distorting (Baffes and De Gorter, 2005)

Decoupled support has smaller production effects because these payments are fixed in value and not contingent on any current action by the recipient. However, while payments are not directly tied to level of output, payments themselves can influence future production decisions. This is because payments can reduce farmers’ aversion to risk through the ‘wealth effect. Depending on how payments are disbursed, the variability of farm income can be reduced, hence reducing risks facing farmers, and lead to increased output. Also decoupled payments can affect farmers’ investment and exit decisions by relaxing constraints facing them in capital and labour markets.

Using a household model framework, Skully (2009) examines how different types of households have different responses to decoupled payments and what characteristics a decoupled policy must have to ensure minimal production-distortion and trade-distortion effects. Decoupled payments may influence a recipient household’s decisions through credit. The receipt of a decoupled income transfer by a net creditor household may simply be deposited into savings or invested in other financial assets. It increases household net worth but does not relax any binding financial constraint on the household. In contrast, a decoupled

transfer to a credit-constrained household can relax the binding credit constraint and expand its feasible choice set. There are at least two ways decoupled payments can relax the household's financial constraint. The direct effect is that the payment increases current cash flow. The indirect effect may arise because the entitlement to a stream of decoupled payments may improve the recipient's credit rating.

Skully (2009) argues that decoupled support is redundant since most recipients do not need government support. Existing decoupled support is based on agricultural land ownership or use in a specific base period. Much of the value of coupled agricultural support is capitalized into the value of farmland; reducing coupled support will reduce farmland values. Linking decoupled support to land partially compensates or mitigates this decline in asset values. Consequently, the value of decoupled support is correlated with land ownership and large landowners receive most of the payments. Thus most decoupled support goes to wealthy recipients and the additional income has little impact on their decisions. There are low-income recipients but they receive a very small share of payments and they account for a very small share of agricultural output. The small production impact we observe from decoupled payments, comes, in large part, from recipients that have low incomes or that can not obtain credit: additional income can influence output in such cases, but the quantity increase is low. The bulk of agricultural output in the OECD is produced by households that are wealthier than the average household. With relatively complete markets and higher farm household incomes the scope for production effects under decoupled support is lower.

Besides reducing the level of distortions, OECD decoupled support policies could also strengthen the capacity to maintain an agricultural production "reserve". Such policies which could include support for land set aside, support for technology and farm human capital skills, incentives to maintain set-aside land in production ready and environmentally sustainable condition, and other similar policies could be a powerful alternative to physical and very expensive "commodity reserves" which are not only hard to organize, but also very questionable in their effectiveness. On the other hand set-aside productive land can be brought into physical production in high income countries within 6-10 months (the recent supply response is evidence to that), providing a powerful reserve to any future food shortages while, at the same time, not distorting current global markets with overproduction.

### **1.1.2 Market access restrictions to trade**

It is commonly acknowledged by economists that market access restrictions imposed by OECD countries on third countries products have greater impact on agricultural trade than domestic support. According to the GTAP database estimates of support to global agriculture and processed food in 2001, import tariff barriers represented 81.4% of total support to agriculture in all countries (tariffs accounted for \$691

billion, direct domestic subsidies accounted \$97 billion, and export subsidies only \$61 billion) (Anderson, Martin and Valenzuela, 2006).

Market access restrictions come in the form of tariff barriers and a wide range of non-tariff measures (standards, seasonal restrictions, tariff-rate-quotas, etc.). The relatively higher prominent role of market access vs. domestic support can be explained by different factors. First, from the economic theory of protectionism, tariffs represent a double distortion acting as both a consumption tax and production subsidy (Corden, 1977) whereas domestic support is mostly a production subsidy. Second, tariffs are widely adopted in agriculture and all countries use them, developed and developing ones, even in cases where no domestic support is present; moreover tariff dispersion is high not only in terms of products but also in terms of partners (because of regional agreements, preferential schemes and tariff rate quotas).

Market access to agricultural trade is still restrictive for developing countries. The 70 countries most penalized by agricultural protectionism are developing countries (Bouet and Laborde, 2009). However, market access restrictions are not uniform across products, countries, and groups of countries, depending not only on developing countries' income and development levels but also on whether countries are subject to MFN or preferential tariffs, on countries' product specialization, and on their net trade position. Exports from developing countries still face high import barriers, except for countries that benefit from preferential tariff access such as under the Generalized system of Preferences (GSP), the African Growth and Opportunity Act (AGOA), the Everything But Arms (EBA) initiative etc .

Tariff liberalization studies converge in concluding that tariff liberalization accounts for the lion's share for potential increases in trade and global welfare (much more than domestic support). Not only do tariffs hinder trade directly (being equivalent to a consumption tax plus a production subsidy), but they are also the most widely used instrument of trade protection. Import barriers account for over 80% of total support to agriculture in all countries (Anderson et al., 2006). Trade liberalization studies concur that tariffs are by far the main source of distortions and account for more than 90% of expected benefits and that developing countries, as a group, could be large beneficiaries of these reforms.

However, developing countries are a very heterogeneous group, some are net exporters others net food importers and so the impact of protectionist policies in OECD can be quite different from one country to another. Also trade policy and impacts of liberalization affect LDCs (least developed countries) differently from MIC (middle income countries). A recent assessment by Bouet et al. (2008) of the Doha Round latest proposal as of 2008 shows that some of the LDCs will lose out from the reform, if they rely on few commodities for exports and export high shares to markets that offer preferential treatments. LDCs from Africa that export more to EU are in vulnerable position.

Market access restrictions are not limited to import tariffs. Non-tariff barriers can often impede trade severely, as in the case of agriculture. Disdier, Fontagné, and Mimouni (2008) show that Sanitary and Phyto-Sanitary (SPS) measures and Technical Barriers to Trade (TBT) are highly prevalent in the OECD agriculture, and that they negatively influence OECD imports. These authors' estimations also suggest that SPS and TBT significantly reduce Developing Countries and LDCs exports to OECD countries while having no significant impact on trade between OECD members. Clearly, a new Doha Round agreement must place a significant ceiling on commodity-based distortionary farm support and must include significant reductions in market access restrictions.

One way to remedy the perceived inequity of OECD governments spending large amounts of resources to support their agricultural production is to propose a counter-measure as compensation for developing countries agriculture, especially for those countries badly in need of assistance to prop up their production capacity, particularly among the resource-poor countries. The basic idea is for OECD countries to offer compensatory financing for developing country producers as a way to achieving fairer trade. One option is to agree that a certain percentage of farm subsidies in OECD countries be put into a global development fund to be distributed to eligible developing country (especially LDC) farmers along established criteria for eligibility, such as the estimated distorting effect on them from developed country policies. The funds could be used for projects to raise production, ensure sustainability of productive resources, agricultural research, and improvement of local human capital that is tied to agriculture.

### **1.1.3 Risk management and policies in OECD**

As OECD farm support shifts from commodity based to decoupled measures, farm incomes have become more variable, and safety nets in the form of risk mitigation measures, such as revenue or weather insurance have been increasingly relied upon to provide protection from unpredictable swings in farm incomes. Several agricultural policies have been justified, through time, with the attempt to reduce farmer's risks and stabilize agricultural income. For instance, support policies adopted by OECD countries until the late 1980s were directly aimed at reducing price and income variability, while at the same time pursuing a wider reliance on domestic production. It is known, however, that rather than reducing variability, price support coupled with the necessary market protection has resulted mostly in a transfer of instability from some markets to other markets and specifically from OECD markets to the rest of the world. The need to bring agricultural tariffs and agricultural policies in the GATT and later in the WTO resulted, *inter alia*, from the increased trade integration and the related improved awareness of the instability that was being transferred from some markets to others.



Considering the major recent agricultural policy developments in the OECD – particularly the 2008 US Farm Bill, Canada’s Growing Forwards Framework, Mexico’s increasing support to price hedging, the Australian on-going revision of drought policies and EU Health Check of the Common Agricultural Policy - there seem to be an increasing attention to risk and the risk-related effects of agricultural policies (OECD, 2009).

One popular idea in OECD countries has been that insurances can substitute for market intervention as a tool to shield farmers from income and production risks. Insurances, *per se*, are market-based products, which can be sold at a market price and such price reflects the degree of risk attached to risky event, as computed by the insurance company. The decision of a farmer to purchase insurance should, therefore, depend on her/his own risk consideration, and should not require public intervention. The only public good that the State may supply into this market is information, which may not be universally and/or symmetrically available: hence validating, certifying and diffusing the data required to assess probability distributions of risky events is virtually the only role that public policies should logically play in the insurance market.

Yet agricultural insurances have been widely subsidized in OECD countries. They are classified as “green box” or “minimally distorting” policies in the WTO negotiation. In the US, for instance, farm insurance and payments under crop and weather insurance are projected to reach \$22 billion in the 2008-2012 period; this represents a substantial share of total farm support. The EU has also started re-examining its current agricultural insurance schemes, based on the observation that existing ones tend to be inefficient, expensive, and distortionary, as they entail high transaction costs and tend to increase the expected returns of covered products.

Sources of risk in agriculture are numerous, diverse, and often interrelated (OECD, 2009). They include prices, as well as a diversity of weather, pests and diseases hazards, or personal circumstances. Unexpected changes may occur in access to services such as credit, finance, or in the legal framework. Managing risk is an important part of farming, and improving risk management is a concern for several Governments in the OECD. Risks that are frequent but do not imply large losses are typically managed on the farm. Risks that are infrequent but generate a large amount of damage to farm income are likely to fall under the catastrophic risk layer, for which market failure is more likely. In between these two layers there are intermediate risks for which some insurance or market solutions can be developed. It is important to allow solutions to each type of layer to develop so that a variety of instruments are available to farmers.

Given the prevalent government support to agriculture in OECD countries, it is difficult to disentangle risk management from these policies. All agricultural

policy measures have an impact on risk. Some of them, however, are specifically designed to reduce price, yield or income variability, or to smooth consumption and thus help farmers in managing risk, either because they prevent or reduce the occurrence of risk (risk reduction), or because they limit the effect of risk on income (risk mitigation) or consumption (risk coping) (OECD, 2009). An example of risk reduction measure is vaccination for animal disease control. Market price support (MPS) measures, which stabilise domestic prices, also reduce price risk. Risk mitigation and coping can operate through established (ex ante) mechanisms, such as countercyclical payments with variable rate, subsidies to insurances, futures, options, income tax smoothing, diversification, or income stabilisation programmes. Ex post interventions, such as disaster payments include mainly ad hoc assistance to compensate income losses in the aftermath of a catastrophic event. In the U.S. subsidized insurance, which was started in 1980, seems not to have replaced the need for disaster assistance (Glauber, 2004). On the other hand, evidence from the EU shows that countries where insurances are less common spend more in ex post disaster payments (Garrido and Bielza, 2008). OECD (2009) report that risk-related policies account for a significant share of the Producer Support Estimate (PSE) in OECD countries, about 51% in the European Union and 63% in the US for 2002-07 average period.

The existence of support policies that reduce risks may reduce the willingness of farmers to engage in on-farm mitigation strategies, or to purchase insurances. However, policies may tackle risks which are not insurable by the private sector, and are complementary to insurable risks, and reduce information gaps and asymmetries, hence leading to an increase in the demand and supply of market based risk management tools. Evidence for the OECD indicates that the cost of yield insurance in excess of a "fair" premium increases with diversification, and that the proportion of planted area insured decreases with the size of the Single Farm Payment for major crops in the EU (OECD, 2009). Evidence also indicates that market-based risk management tools are better suited for reducing risks but other support measures, such as area payments, are found to be more transfer efficient in terms of profits or income, and less efficient in reducing risk (OECD, 2005).

Another policy dilemma arises between the objective of reducing risk and that of minimising the distortionary impact of policy measures on production and trade. In fact, all programmes which affect variables in the current period, such as prices or revenues, do affect production and trade in a number of ways. Particularly, dynamic effects on production may materialize through an increased ability to invest ("insurance effects") or through a reduced risk of bankruptcy (Vercaemmen, 2000; 2003). Evidence indicates that measures with larger impact in terms of risk reduction, such as crop insurance and price hedging, also have relatively larger impacts on production (OECD, 2005), as they can substantially modify market incentives.

### **1.1.4 Biofuel policies**

A growing area of complication in agricultural policies is the role of biofuels and the increasing linkage between agriculture, energy, and climate change mitigation policies in general. Since a major driver for biofuel push in OECD countries is due to production subsidies, tariffs and mandates, these support policies are becoming more in-meshed with traditional agricultural support policies adding a new dimension to the distortionary effects on agricultural production and trade. Proponents of biofuel subsidies argue that these subsidies may lessen the use of farm subsidy programs, as biofuels offer a new domestic market for agricultural products that could stimulate demand and push up prices, thus ultimately reducing the level of farm-subsidy payments. Moreover, biofuel growth tends to raise world prices thus masking the price depressing effects of traditional farm policies, making it more difficult to sort out the distortionary effects of each.

Biofuel policies are not agricultural policies but influence agricultural output and trade. Biofuel policies have the opposite effect of traditional market-price-based agricultural support: they effectively subsidize the consumption of biofuel feedstocks – maize for ethanol and oilseeds for biodiesel – and this increases commodity prices and reduces net commodity exports. Thus, current biofuel policies tend to benefit net exporters of cereals and oilseeds and to reduce the real incomes of net importers. Feedstock use is expanding rapidly and has raised concerns about global food security. In the short-run, grain and oilseed prices are likely to be higher and more variable than in the absence of biofuel programs. It appears likely, however, that alternative feedstocks will become economically viable, replacing maize and oilseeds and reducing the growing diversion of farmland to energy use.

In summary, this review of OECD farm policies and their distortionary effects, shows that overall, OECD farm support have been stable over many decades with increasing protectionism up to mid-1980's when it began slightly declining; this coincided with the onset of the Uruguay Round which succeeded in bringing agriculture under the WTO disciplines. Since the mid-1980's, OECD farm support policies followed a more or less steady pattern of policy re-instrumentation characterized largely by a shift away from commodity-based (and highly distortive) support to more or less decoupled support that less distortionary effects on production and trade. From the perspective of aiming to expand non-distortionary policy support, further decoupling in OECD support policies should be encouraged and expanded to more OECD countries and for all agricultural commodities. Also with increased decoupling there is greater interest in OECD toward policies that directly reduce price and income risks in other means (such as subsidizing insurance). However, to avoid creating new sources of distortions, it is important that agricultural insurance support policies in OECD deal mostly with extreme and unpredictable agricultural risks that cause market failures, and be more market-based so as to provide non-distortive safety nets to farmers.

From trade perspective, this review showed that the distortionary effects of border policies that restrict market access are larger than those of domestic support. As a consequence, much more emphasis on slashing market access provisions in the Doha agenda should be the main aim of the Doha negotiations.

## 1.2 Developing countries farm policies

Public support to agriculture in developing countries is essential for raising productive capacity, stimulating growth, improving income and reducing overall poverty. Legitimate public investments in agriculture in developing countries can be justified to correct for many market failures and to achieve higher productive capacity, reduce income and price risks and uncertainty, or preserve natural resources and the environment. Examples of the types of non-distorting policy support for developing countries are summarized in Table 1.1.

**TABLE 1.1**  
Types of non-distorting farm support for developing countries' agriculture

Policy Goals	Types of Government (Public) Interventions
Maintain or improve productive capacity	<ul style="list-style-type: none"> <li>• Research and development (new varieties)</li> <li>• Better management techniques</li> <li>• Efficient use of inputs (water, fertilizer, pesticides)</li> <li>• Develop input market systems</li> <li>• Improved storage, processing, product quality</li> <li>• "hard" infrastructure (irrigation, land restoration)</li> <li>• "soft" infrastructure (information systems, lowering transaction costs, extension of best practices)</li> </ul>
Correct market failures	<ul style="list-style-type: none"> <li>• Facilitate exchange between producers/buyers</li> <li>• Provision of credit (subsidized)</li> <li>• Technology dissemination/farmers training</li> <li>• Support producers organizations/inter-professions</li> <li>• Promote value chain development</li> </ul>
Reduce income and price risks/uncertainty	<ul style="list-style-type: none"> <li>• Support information for insurance markets</li> <li>• Market information systems for exchange</li> <li>• Investments in post-harvest storage</li> <li>• Veterinary services to livestock</li> <li>• Insurance/safety nets against crop failures, droughts..etc</li> </ul>
Better food security and lower hunger	<ul style="list-style-type: none"> <li>• Foster rural employment</li> <li>• Targeted input subsidies (fertilizer, seeds)</li> <li>• Storage/safe processing for staple foods</li> <li>• Subside credit to farm and off-farm activities</li> <li>• Staple food/cash crops promotion/demand creation</li> <li>• More R&amp;D in staple food varieties, improved techniques</li> <li>• Investments/subsidies in post-harvest storage</li> <li>• Quality control for stored grain</li> <li>• Improve processing for perishable staples</li> </ul>
Preserve natural resources and environment	<ul style="list-style-type: none"> <li>• Soil fertility management</li> <li>• More efficient use of water (proper pricing)</li> <li>• R&amp;D in varieties adapted to climate change</li> <li>• Best practices for less pesticides</li> </ul>

Source: Compiled by authors

### **1.2.1 Agricultural investments**

In developing countries the question is how to ensure farm support in order to increase food production and ensure food security and other growth related goals, without generating large distortions or impeding progress toward an open international trading system. In the last 20 years, many developing countries have steadily reduced spending and investments in agriculture and the latter have received a disproportionately small allocation of public resources (Bezemer and Headey, 2006). Likewise, foreign aid to agriculture has also contracted during this period. DFID (2005) shows that absolute global assistance to agriculture decreased from \$6.2 billion to \$2.3 billion between 1980 and 2002 (expressed in 2002 prices). Thus, agricultural aid per rural inhabitant sharply declined in the past 20 years.

This marked de-emphasis of agriculture in developing countries over the past two decades is partly blamed on the so-called “Washington Consensus” in which donor/development agencies led by the World Bank and IMF pushed developing countries to scale back public role in agriculture and promoted privatisation and market forces to steer growth. Bezemer and Headey (2006) show that market-oriented reforms (“liberalization”) in LDCs, while contributing to reducing the anti-agriculture biases, also coincided with reductions in agricultural expenditure. These reforms had profound effects on the agricultural sector, since privatisation did not quite take off for lack of prerequisite conditions and resulted in a net disinvestment or simply elimination of the many public policies and institutions (e.g., marketing boards). In some cases, the dismantled public agencies were viewed as constraining private sector development while in other cases the motivation was to remove inefficiency or drains on public resources and their adverse effects on macro stability. Consequently, public spending on agriculture declined at the same time as the lowering of net taxation of agriculture. The effects of these dual-policy reversals within agriculture have been mixed (Bezemer and Headey, 2006).

The real challenge today is to reverse this trend and augment investments in agriculture and stimulate growth while learning from recent experiences and failures. Recent developments point out that such reversal is possible. The global food crisis (2006-2008) jolted many governments in the developing world to begin paying attention to agriculture after a long period of neglect, most notably in Africa where calls for sharp increases in agricultural expenditures are heard in many capitals. Even the development aid/donor community have loosened their resistance to direct public intervention and have begun reallocating more resources to agricultural development. However, the challenge is to avoid measures that would introduce large and detrimental distortions, impede the move toward a more open trading system and avoid focusing on short public expenditures that can neither be sustained nor truly contribute to long term rise in agricultural productivity and sustainably improved farm incomes. Learning from the recent experiences, both the successes and the failures would help, and the focus should be not so much on

just spending money at programs and initiatives, but rather tackling institutional, bureaucratic as well as human capital deficit challenges. The latter point is particularly critical for Africa, where it has been shown that government spending in human capital is strongly linked to economic growth (Yu, Fan and Saurkar, 2009).

## **1.2.2 Policy-induced distortions, trade policies, and Doha Round**

### **A. Agricultural distortions**

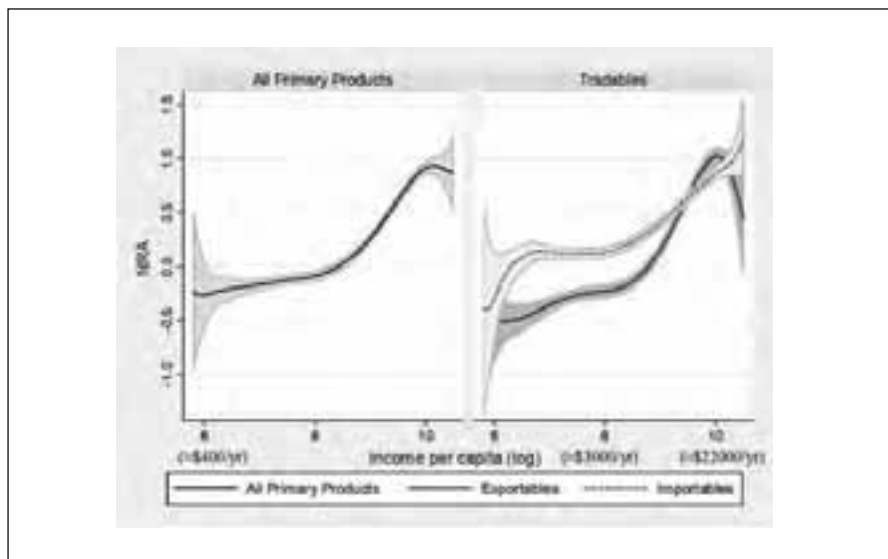
An important element in promoting agricultural growth is trade and policy-induced distortions that limit its potential. A recent World Bank study estimated agricultural distortions for 75 countries from the period of 1955 to 2007 (Anderson, 2009). In this study, agricultural distortions were proxied by the Nominal Rate of Assistance (NRA), defined as the percentage by which government policies have raised gross returns to farmers above what they would be without the government's intervention. For each country, agricultural and non-food products were separated between importables, exportables and non-tradables and an NRA coefficient was estimated for each.

In developing countries farm policies have been driven largely by the need to accelerate a transition from low income agrarian structures to more developed industrialized and service oriented economies. The overall effect of such policies, as measured by Nominal Rates of Assistance (NRA), has been largely to tax producers (namely negative NRAs). In the process, the agricultural sectors in many countries have faced negative policy biases and low growth while inducing increasing import dependence. However, when average incomes grow (typically at a per capita income level of \$ 8000 or more), the type of farmer support in developing countries seems to turn positive and seems to follow a pattern similar to that of now developed countries, namely NRAs increase as the share of agriculture in the economy declines and average agricultural and total incomes increase. The results from the World Bank study bore this out by showing that broadly developing countries taxed agriculture via price and trade policies from the early 1960s to the late 1970s/early 1980s before gradually reducing the taxation and, by the mid-1990s, switching to slightly positive assistance to them in aggregate (Figure 1.1).

By contrast, high income countries supported agriculture and that support rose steadily from the 1950s to the late 1980s before declining slightly over the 15 years to 2004. Within countries, farm support and resulting distortions were more pronounced for importables than for exportables or non-tradables. Commodities that received the highest form of support included rice, sugar, dairy, beef, poultry and cotton. Trade measures at the border (export and import taxes or subsidies and their equivalent from quantitative trade restrictions and multiple exchange rates) accounted for 75 % of the total NRA for developing countries and over 90% for high-income countries.

FIGURE 1.1

Average Nominal Rate of Assistance (NRA) to agricultural producers as a function of country per capita income



Source: Masters (2009)

When expressed on per farmer basis, the gross subsidy equivalent (GSE) of these distortions varies greatly between high-income and developing countries. In 1980-84 the GSE in high-income countries was already around \$8,000 and by 2000-04 it had risen to \$10,000 on average or \$13,500 when 'decoupled' payments are included. By contrast, the GSE in developing economies was negative \$140 per farmer in the first half of the 1980s and rose to around \$50 per farmer by 2000-04 or about less than one percent of the support received by the average farmer in high-income countries. Clearly, developing countries as a whole managed to reduce or even reverse the long-standing anti-agriculture bias via changes to prices and trade policies. Unfortunately, the other side of the coin was a steady decline in investments and public expenditures on agriculture since the 1980s, a dual policy path that, for too many developing countries, had only mixed results (if not outright negative in some cases) in terms of agricultural growth.

## B. Trade policy and Doha development round

While slashing market access restrictions from high income countries would provide a significant boost to agricultural trade and hence production and growth in developing countries, the latter also need to lower their own often high border

protections on their imports to fully benefit from a more open trading system; this is particularly important in light of enormously underexploited exchange opportunities in regional and south-south trade.

Tariff levels remain high but vary widely by region and countries, and there is a great deal of tariff dispersion between countries. Dispersion of agricultural protection between countries is high in Africa, Asia, and low in South America. In Africa, agricultural protection is relatively low in Western Sub-Saharan Africa, higher in the South African region, and even higher in the Central African and North African regions. Tariff dispersion is particularly high for Middle Income Countries like Egypt (41.5%), India (58.4%), Morocco (40.8%), Nigeria (42.6%), Thailand (38.8%), Tunisia (46.3%) and Turkey (35,3%) (Bouet and Laborde, 2009). The agricultural exports of 108 countries out of 183 are restricted by average taxes amounting to more than 15%, 29 countries by average taxes amounting to more than 30% and five by more than 50%. In terms of agricultural trade diversification, least developed countries (LDCs) rely precariously on a very small set of traded products for their trade. By comparison HICs and MICs tradable product mix is more diversified.

On a product basis, agricultural protection is particularly high for a small number of commodities such as sugar, meat products, dairy, and tobacco and beverages (see Figure 1.2). Tariff escalation is still sizeable and the coexistence of ad-valorem with specific tariffs makes protectionism volatile. For example border tariffs are higher on average for meat products than livestock, milled products than cereals, and processed food than raw commodities.

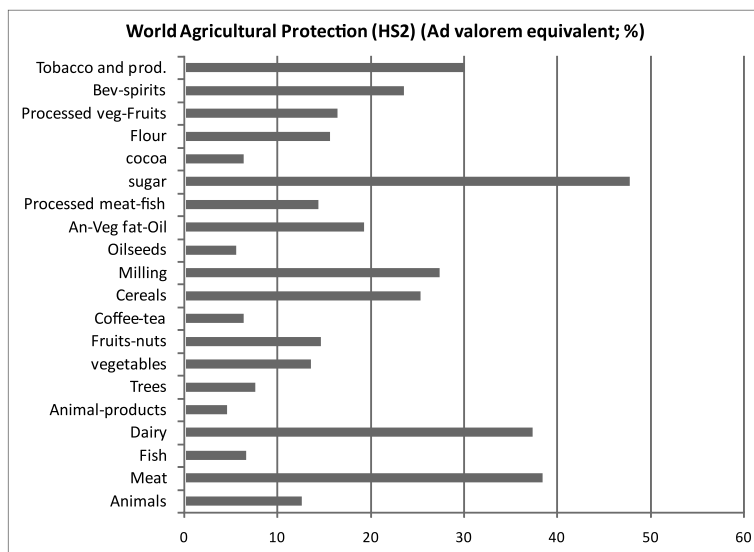
Another factor that needs revisiting in light of its impact on developing agriculture is food aid. The issue has become increasingly contentious. It is also one of a handful of significant points of disagreement in current agricultural trade negotiations under the World Trade Organization (WTO)'s Doha Round, as the United States and the European Union wrangle over the possible trade displacement and developmental effects of food aid. Food aid is often blamed for creating disincentives for small farmers in recipient countries by depressing food prices, distorting markets, discouraging overdue policy reforms and fostering dependency.

During last year's global food shock, many low income food deficit countries (LIFDCs) were unable to import enough food to maintain domestic consumption levels because of trade finance restrictions imposed by export financing institutions in developed countries. This problem is a recurring one and was supposed to be dealt with under the Marrakesh Decision of the Uruguay Round but was never tackled. A way to deal with it would be to promote the creation of a Food Import Financing Facility (FIFF). The purpose of such a FIFF would be to provide additional trade financing to the agents of LIFDCs for the cost of excess food import bills, so as to maintain normal levels of quantities of imports in the face of price shocks, or to make it possible to import extra quantities in excess of normal commercial import



requirements. FAO has worked out the modalities of such an international scheme, the idea of which is supported by export financing banks.

**FIGURE 1.2**  
**World agricultural protection at the HS 2 level**



Source: Bouet and Laborde, 2009

Commodity export earnings instability has been a long standing problem for low income commodity dependent economies. Existing or past international instruments are being debated a new. Examples include the EU's STABEX system (devised for ACP countries), SYSMIN (for the mineral sector) and the IMF's Compensatory Financing Facility. The STABEX was devised for the benefit of ACP countries that are party to the Lome Convention with the European Union. Through this policy, the EU attempted to stabilize the export earnings of the ACP countries. The STABEX objective was to reduce the instability of the agricultural export earnings of the developing countries which signed the Lome agreement. A commodity-by-commodity analysis by Aiello provided an empirical evaluation of the effects of the financial transfers disbursed by the EU. The results showed that STABEX had a positive impact on the sectors in which the drop of export earnings occurred (Aiello, 1999).

However, both the STABEX and SYSMIN (minerals) subsidy systems have been criticized for being procyclical rather than compensatory, and also contributing to the reinforcement of lop-sided production structures and not to the diversification of production. As a result, the EU has reduced reliance on these subsidy schemes.

Agricultural growth in Africa can only proceed through development of a diversification and value addition strategy, and not reliance on exports of raw materials alone. Nevertheless, a new type of policy to manage export earnings risks would be to link commodity related compensatory payments to index based financial products, so that compensation can be made automatically and objectively.

### **1.2.3 Input subsidies and enhancing production capacity**

Input use (especially seeds and fertilizers) is obviously an important factor in improving agricultural production, productivity and farm income. Use of improved (selected) seed varieties is often associated with markedly higher yields. Likewise, lack of access to fertilizer is commonly cited by farmers as a major constraint on yields and production. Obviously, when such necessary inputs are underutilized, this inevitably points to one or different types of market failures. And input subsidies have often been used as a mechanism to stimulate agricultural production and induce agricultural growth and rural development.

In Africa, there has been a renewed interest in input subsidies to stimulate domestic production for enhanced food security, especially after the aftermath of the recent food price crisis. Such pressing demands are coming not only from the African governments, but also NGOs and supported by the international donor and development aid institutions, who have been chastened in the past by the failures of liberalized policies in supporting broad based agricultural development, particularly sustainable intensification of staple food crop production.

The question is whether input subsidies are a wise approach to spend public resources. If so, what conditions are required for successfully meeting their intended goals. Equally important are the lessons from past input subsidy experiences can we draw for designing better programs in the future. The key criteria for input subsidy success is to entice farmers who currently do not use fertilizer to do so. This means an input subsidy program would ideally avoid a situation where input subsidies are transferred to farmers who already use fertilizer without the subsidy; target products with high supply response potential and with inelastic demand and supply among poor producers and consumers (e.g., staple grains). Input subsidies should also strive to avoid rent seeking from straight transfers resulting in economic (deadweight) losses (Dorward, 2009).

Effective input subsidies are best applied to overcome market failures constraining their use, especially in the production of staple crops (grains and tubers) when input use is sub-optimal. To be effective, input subsidies must also be targeted and rationed to limit costs. This is because a general input subsidy is difficult to channel to smallholders unless there is a limited number of tightly controlled supply chains, clear ways of identifying intended beneficiaries, and a high degree of discipline and control of private fertilizer transactions (Dorward, 2009). Consequently, effective

subsidies need not be large scale and across the board subsidies, for that would make them extremely costly with large transfers to recipients, not all of whom are in need of such outlays, and rent seeking behaviour from various stakeholders (especially the non-poor).

Often input subsidies are not enough by themselves. To be effective, they require large investments in complementary investments, output market development policies and institutional support. If successful, input subsidies could help develop a functioning input market and improved supply systems, build farmers know-how, and induce dynamic and spill over effects on rural economies and other agricultural activities beside the targeted commodities.

Yet, input subsidies have often run into ineffective or inefficient implementation entailing substantial risks in terms of costs; lack of exit strategy; practical difficulty of targeting the input subsidies to particular farm types; and inciting over use of inputs and adoption of input-intensive rather than labour-intensive management practices. There is also the problem of resource (mis)allocation between subsidising inputs and other priorities (e.g. research, investment in infrastructure) and on the targeted beneficiaries of the subsidies (consumers, producers, taxpayers). Moreover, input subsidies are always subject to the type of political economy considerations that have derailed programmes in the past, especially for rationed input subsidies which create opportunities for those controlling the subsidies to divert them from their intended beneficiaries, be it users (subsidies not going to those targeted producers) and/or products (subsidies not going to those low productivity crops most in need of raising input use for greater productivity).

There are few cases of success stories relating to effective use of input subsidies in developing countries. In many cases, such programs have been plagued by weaknesses of design and implementation (Dorward, 2009). Such weaknesses are often linked to the failure to develop an effective input supply and delivery system to the farmers, hence limiting any success from the intended program. The failure of past input subsidies also stems mainly from the lack of careful targeting and the absence of monitoring and evaluation of how these programs worked.

A review of several fertilizer subsidy programmes in Africa by Dorward (2009) shows that often these input subsidy programs tend to over emphasise setting specific production targets without due consideration to consumers' interests or to wider pro-poor economic growth. As a result, input subsidies programs, as currently implemented in many African countries, are rarely implemented with necessary complementary investments in input market infrastructures and other market instruments (such as institutional support to farmers organizations) needed to ensure effective implementation of such programmes in the long run.

In face of these institutional and endemic implementation difficulties in developing countries, the question is whether input subsidy is the best way to encourage higher input use when desired. Are there alternatives to input subsidies or if justified, how can input subsidies be made part of broader strategies encompassing other critical market failure remedies that can also result in more optimal use of inputs in agricultural production.

One alternative to direct input subsidies is to devote the limited public resources to the development of an effective input delivery system that can ensure greater input accessibility and affordability. Examples of intervention under this form of support include funding seed multiplication farms, support to local production/processing of fertilizer, developing facilities to process imported input formulas, support to agronomic research focusing on developing adapted fertilizer formulas for specific crops and promoting extension demonstration for best practices in input use, subsidizing infrastructure and transport of inputs from factory to local points of sales, etc. The advantages of investing in input delivery and marketing systems are the potential widespread benefits to a large number of producers across a number of crops, allowing farmers to make optimal decisions on how much input to use and for which crops. Besides the clearly public-good dimension of such support, it also avoids the pitfall of inducing input over use and allows for fewer opportunities for leakages and wasteful rent seeking behaviour. Still the actions may not be enough to correct for too high price of inputs (fertilizer) relative to produce prices. In such case, small scale farmers may still be discouraged from input use from high costs.

Another channel to enhanced input use is better access to credit. Credit access is considered a prerequisite to input use in most farming situations. One alternative to direct input subsidy is to provide subsidized credit to farmers to finance input purchases. This form of support would overcome one of the most endemic causes of underutilization of inputs among small farmers. In fact, in many cases past state interventions on stimulating input use involved subsidized credit. Such approach has the advantages of avoiding the input-overuse possibility from subsidy and would also allow optimal decisions by farmers in deciding on the mix of input to use. However, this approach too has limitations. Even with subsidized and accessible credit, the price of unsubsidised inputs may still be too high relative to product prices and hence remain out of reach for small farmers who would need it the most. Also, misuse of agricultural credit programs in the past led to financial losses, and credits were often applied regressively (loans to well-connected and wealthy borrowers). In fact, the demise of the farm credit programs in many developing countries allowing farmers to purchase inputs, is one of the justification for opting for significant subsidies to inputs as the only option that will significantly incite small poor farmers to access and use inputs such as fertilizer.