ECN330 Module 3 SRP. WTO Rules on Trade in Goods: Subsidies

1. SUBSIDIES AND DOMESTIC SUPPORT

The WTO Agreement on Subsidies and Countervailing Measures ("SCM Agreement") addresses two separate but closely related topics: multilateral disciplines regulating the provision of subsidies, and the use of countervailing measures to offset injury caused by subsidized imports (module 4) [1].

Multilateral disciplines are the rules regarding whether or not a subsidy may be provided by a Member. They are enforced through invocation of the WTO dispute settlement mechanism. Countervailing duties are a unilateral instrument, which may be applied by a Member after an investigation by that Member and a determination that the criteria set forth in the SCM Agreement are satisfied [1].

Definition of subsidy Unlike the Tokyo Round Subsidies Code, the SCM Agreement contains a definition of the term "subsidy". The definition contains three basic elements: (i) a financial contribution (ii) by a government or any public body within the territory of a Member (iii) which confers a benefit. All three of these elements must be satisfied for a subsidy to exist [1].

The concept of "financial contribution" was included in the SCM Agreement only after a protracted negotiation. Some Members (EC) argued that there could be no subsidy unless there was a charge on the public account. Other Members (US) considered that forms of government intervention that did not involve an expense to the government nevertheless distorted competition and should thus be considered to be subsidies. The SCM Agreement basically adopted the former approach. The Agreement requires a financial contribution and contains a list of the types of measures that represent a financial contribution, e.g., grants, loans, equity infusions, loan guarantees, fiscal incentives, the provision of goods or services, the purchase of goods [1].

A financial contribution to be a subsidy must be made by or at the direction of a government or any public body within the territory of a Member. Thus, the SCM Agreement applies not only to measures of national governments, but also to measures of sub-national governments and of such public bodies as state-owned companies [1].

A financial contribution by a government is not a subsidy unless it confers a "benefit." In many cases, as in the case of a cash grant, the existence of a benefit and its valuation will be clear. In some cases, however, the issue of benefit will be more complex. For example, when does a loan, an equity infusion or the purchase by a government of a good confer a benefit? Although the SCM Agreement does not provide complete guidance on these issues, the Appellate Body has ruled (Canada - Aircraft) that the existence of a benefit is to be determined by comparison with the market-place (i.e., on the basis of what the recipient could have received in the market). In the context of countervailing duties, Article 14 of the SCM Agreement provides some guidance with respect to determining whether certain types of measures confer a benefit. In the context of multilateral disciplines, however, the issue of the meaning of "benefit" is not fully resolved [1].

Specificity. Assuming that a measure is a subsidy within the meaning of the SCM Agreement, it nevertheless is not subject to the SCM Agreement unless it has been specifically provided to an enterprise or industry or group of enterprises or industries. The basic principle is that a subsidy that distorts the allocation of resources within an economy should be subject to discipline. Where a subsidy

is widely available within an economy, such a distortion in the allocation of resources is presumed not to occur. Thus, only "specific" subsidies are subject to the SCM Agreement disciplines. There are four types of "specificity" within the meaning of the SCM Agreement:

- Enterprise-specificity. A government targets a particular company or companies for subsidization;
- Industry-specificity. A government targets a particular sector or sectors for subsidization.
- Regional specificity. A government targets producers in specified parts of its territory for subsidization.
- Prohibited subsidies. A government targets export goods or goods using domestic inputs for subsidization [1].

Categories of Subsidies

The SCM Agreement creates two basic categories of subsidies: those that are prohibited, those that are actionable (i.e., subject to challenge in the WTO or to countervailing measures). All specific subsidies fall into one of these categories [1].

Prohibited subsidies Two categories of subsidies are prohibited by Article 3 of the SCM Agreement. The first category consists of subsidies contingent, in law or in fact, whether wholly or as one of several conditions, on export performance ("export subsidies"). A detailed list of export subsidies is annexed to the SCM Agreement. The second category consists of subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods ("local content subsidies"). These two categories of subsidies are prohibited because they are designed to directly affect trade and thus are most likely to have adverse effects on the interests of other Members [1].

The scope of these prohibitions is relatively narrow. Developed countries had already accepted the prohibition on export subsidies under the Tokyo Round SCM Agreement, and local content subsidies of the type prohibited by the SCM Agreement were already inconsistent with Article III of the GATT 1947. What is most significant about the new Agreement in this area is the extension of the obligations to developing country Members subject to specified transition rules (see section below on special and differential treatment), as well as the creation in Article 4 of the SCM Agreement of a rapid (three-month) dispute settlement mechanism for complaints regarding prohibited subsidies [1].

Actionable subsidies Most subsidies, such as production subsidies, fall in the "actionable" category. Actionable subsidies are not prohibited. However, they are subject to challenge, either through multilateral dispute settlement or through countervailing action, in the event that they cause adverse effects to the interests of another Member. There are three types of adverse effects. First, there is injury to a domestic industry caused by subsidized imports in the territory of the complaining Member. This is the sole basis for countervailing action. Second, there is serious prejudice. Serious prejudice usually arises as a result of adverse effects (e.g., export displacement) in the market of the subsidizing Member or in a third country market. Thus, unlike injury, it can serve as the basis for a complaint related to harm to a Member's export interests. Finally, there is nullification or impairment of benefits accruing under the GATT 1994. Nullification or impairment arises most typically where the improved market access presumed to flow from a bound tariff reduction is undercut by subsidization [1].

Agricultural subsidies Article 13 of the WTO Agreement on Agriculture (AoA) establishes, during the implementation period specified in that Agreement (until 1 January 2003), special rules regarding subsidies for agricultural products. Export subsidies which are in full conformity with the AoA are not prohibited by the SCM Agreement, although they remain countervailable. Domestic supports which are in full conformity with the AoA are not actionable multilaterally, although they also may be subject to countervailing duties. Finally, domestic supports within the "green box" of the AoA are not actionable multilaterally nor are they subject to countervailing measures. After the implementation period, the SCM Agreement shall apply to subsidies for agricultural products subject to the provisions of the AoA, as set forth in its Article 21 [1].

Special and Differential Treatment

Developing countries

The SCM Agreement recognized three categories of developing country Members: least-developed Members ("LDCs"), Members with a GNP per capita of less than \$1000 per year which are listed in Annex VII to the SCM Agreement, and other developing countries. The lower a Member's level of development, the more favourable the treatment it receives with respect to subsidies disciplines. Thus, for example, LDCs and Members with a GNP per capita of less than \$1000 per year listed in Annex VII are exempted from the prohibition on export subsidies. Other developing country Members had an eight-year period to phase out their export subsidies (they could not increase the level of their export subsidies during that period). With respect to import-substitution subsidies. LDCs had eight years and other developing country Members five years, to phase out such subsidies. There is also more favourable treatment with respect to actionable subsidies. For example, certain subsidies related to developing country Members' privatization programmes were not actionable multilaterally [1].

Notifications

<u>Subsidies</u> Article 25 of the SCM Agreement requires that Members notify all specific subsidies (at all levels of government and covering all goods sectors, including agriculture) to the SCM Committee. New and full notifications are due every three years with update notifications in intervening years.

Dispute Settlement

The SCM Agreement generally relies on the dispute settlement rules of the DSU. However the Agreement contains extensive special or additional dispute settlement rules and procedures providing, inter alia, for expedited procedures, particularly in the case of prohibited subsidy allegations. It also provides special mechanisms for the gathering of information necessary to assess the existence of serious prejudice in actionable subsidy cases [1].

DOMESTIC SUPPORT UNDER THE WTO AGREEMENT ON AGRICULTURE

The UR-GATT produced the first multilateral agreement dedicated to the sector. The agreement included a commitment to continue the reform through new negotiations to be launched in 2000. The objective of the AoA is to reform trade in the sector and to make policies more market-oriented. This would improve predictability and security for importing and exporting countries alike [2].

The new rules and commitments apply to:

- market access various trade restrictions confronting imports
- domestic support subsidies and other programmes, including those that raise or guarantee farmgate prices and farmers' incomes
- **export subsidies** and other methods used to make exports artificially competitive [2].

The agreement does allow governments to support their rural economies, but preferably through policies that cause less distortion to trade. It also allows some flexibility in the way commitments are implemented. Developing countries do not have to cut their subsidies or lower their tariffs as much as developed countries, and they are given extra time to complete their obligations. Least-developed countries don't have to do this at all. Special provisions deal with the interests of countries that rely on imports for their food supplies, and the concerns of least-developed economies [2].

"Peace" provisions within the agreement aimed to reduce the likelihood of disputes or challenges on agricultural subsidies over a period of nine years, until the end of 2003 [2].

Domestic support

The main complaint about policies which support domestic prices, or subsidize production some other way, is that they encourage over-production. This squeezes out imports or leads to export subsidies and low-priced dumping on world markets. The AoA distinguishes between support programmes that stimulate production directly, and those that are considered to have no direct effect [2].

Domestic policies that do have a direct effect on production and trade have to be cut back. WTO members calculated how much support of this kind they were providing per year for the agricultural sector (using calculations known as "total aggregate measurement of support" or "Total AMS") in the base years of 1986-88. Developed countries agreed to reduce these figures by 20% over six years starting in 1995. Developing countries agreed to make 13% cuts over 10 years. Least-developed countries do not need to make any cuts. (This category of domestic support is sometimes called the "amber box", a reference to the amber colour of traffic lights, which means "slow down") [2].

Measures with minimal impact on trade can be used freely—they are in a "green box" ("green" as in traffic lights). They include government services such as research, disease control, infrastructure and food security. They also include payments made directly to farmers that do not stimulate production, such as certain forms of direct income support, assistance to help farmers restructure agriculture, and direct payments under environmental and regional assistance programmes [2].

Also permitted, are certain direct payments to farmers where the farmers are required to limit production (sometimes called "blue box" measures), certain government assistance programmes to encourage agricultural and rural development in developing countries, and other support on a small scale ("de minimis") when compared with the total value of the product or products supported (5% or less in the case of developed countries and 10% or less for developing countries) [2].

Export subsidies: limits on spending and quantities

The AoA prohibits export subsidies on agricultural products unless the subsidies are specified in a member's lists of commitments. Where they are listed, the agreement requires WTO members to cut both the amount of money

they spend on export subsidies and the quantities of exports that receive subsidies. Table 1 provides a list of commitments taken on support and export subsidies. Taking averages for 1986-90 as the base level, developed countries agreed to cut the value of export subsidies by 36% over the six years starting in 1995 (24% over 10 years for developing countries). Developed countries also agreed to reduce the quantities of subsidized exports by 21% over the six years (14% over 10 years for developing countries). Least-developed countries do not need to make any cuts [2].

During the six-year implementation period, developing countries are allowed, under certain conditions, subsidies to reduce the costs of marketing and transporting exports.

Table 1. Bindings and reduction commitments, domestic support		
Domestic support	Developed countries	Developing countries
Phase-in period	1995-2000	1995-2004
Total AMS cuts for the sector (1986-88 base period)	-20%	-13%
Export subsidies		
Cuts in the value of subsidies	-36%	-24%
Subsidized quantities (base period 1986-90)	-21%	-14%

The least developed countries did not have to make commitments to reduce subsidies [2].

The least-developed and net food importers

Under the AoA, WTO members have to reduce their subsidized exports. But some importing countries depend on supplies of cheap, subsidized food from the major industrialized nations. They include some of the poorest countries, and although their farming sectors might receive a boost from higher prices caused by reduced export subsidies, they might need temporary assistance to make the necessary adjustments to deal with higher priced imports, and eventually to export. A special ministerial decision sets out objectives, and certain measures, for the provision of food aid and aid for agricultural development. It also refers to the possibility of assistance from the International Monetary Fund and the World Bank to finance commercial food imports [2].

What is a 'distortion'?

This is a key issue. Trade is distorted if prices are higher or lower than normal, and if quantities produced, bought, and sold are also higher or lower than normal—i.e. than the levels that would usually exist in a competitive market.

For example, import barriers and domestic subsidies can make crops more expensive on a country's internal market. The higher prices can encourage overproduction. If the surplus is to be sold on world markets, where prices are lower, then export subsidies are needed. As a result, the subsidizing countries can be producing and exporting considerably more than they normally would.

Governments usually give three reasons for supporting and protecting their farmers, even if this distorts agricultural trade:

- ` to make sure that enough food is produced to meet the country's needs
- ` to shield farmers from the effects of the weather and swings in world prices
- ` to preserve rural society.

But the policies have often been expensive, and they have created gluts leading to export subsidy wars.

Countries with less money for subsidies have suffered. The debate in the negotiations is whether these objectives can be met without distorting trade [3].

The Boxes

In WTO terminology, subsidies in general are identified by "boxes" which are given the colours of traffic lights: green (permitted), amber (slow down — i.e. be reduced), red (forbidden). In agriculture, things are, as usual, more complicated. The AoA has no red box, although domestic support exceeding the reduction commitment levels in the amber box is prohibited; and there is a blue box for subsidies that are tied to programmes that limit production. There are also exemptions for developing countries (sometimes called an "S&D box", including provisions in Article 6.2 of the agreement) [4].

AMBER BOX





All domestic support measures considered to distort production and trade (with some exceptions) fall into the amber box, which is defined in Article 6 of the AoA as all domestic

supports except those in the blue and green boxes. These include measures to support prices, or subsidies directly related to production quantities [4].

These supports are subject to limits: "de minimis" minimal supports are allowed (5% of agricultural production for developed countries, 10% for developing countries); the 30 WTO members that had larger subsidies than the de minimis levels at the beginning of the post-Uruguay Round reform period are committed to reduce these subsidies [4].

The reduction commitments are expressed in terms of a "Total Aggregate Measurement of Support" (Total AMS) which includes all supports for specified products together with supports that are not for specific products, in one single figure. In the current negotiations, various proposals deal with how much further these subsidies should be reduced, and whether limits should be set for specific products rather than continuing with the single overall "aggregate" limits. In the AoA, AMS is defined in Article 1 and Annexes 3 and 4 [4].

BLUE BOX





This is the "amber box with conditions" — conditions designed to reduce distortion. Any support that would normally be in the

amber box, is placed in the blue box if the support also requires farmers to limit production (details set out in Paragraph 5 of Article 6 of the AoA) [4].

At present there are no limits on spending on blue box subsidies. In the current negotiations, some countries want

to keep the blue box as it is because they see it as a crucial means of moving away from distorting amber box subsidies without causing too much hardship. Others wanted to set limits or reduction commitments, some advocating moving these supports into the amber box [4].

GREEN BOX





The green box is defined in Annex 2 of the AoA. To qualify, green box subsidies must not distort trade, or at most cause minimal distortion (paragraph 1). They

have to be government-funded (not by charging consumers higher prices) and must not involve price support [4].

They tend to be programmes that are not targeted at particular products, and include direct income supports for farmers that are not related to (are "decoupled" from) current production levels or prices. They also include environmental protection and regional development programmes. "Green box" subsidies are therefore allowed without limits, provided they comply with the policy-specific criteria set out in Annex 2 [4].

In the Doha negotiations, some countries argued that some of the subsidies involved large amounts payments or that the nature of these subsidies or that the trade distortion they caused were more than minimal, e.g., direct payments to producers (paragraph 5), including decoupled income support (paragraph 6), and government financial support for income insurance and income safety-net programmes (paragraph 7), and other paragraphs. Some other countries took the opposite view — that the criteria were adequate, and might even need to be made more flexible to take better account of non-trade concerns such as environmental protection and animal welfare [4].

Development Box

Article 6.2 of the AoA allows developing countries additional flexibilities in providing domestic support. The type of support that fits into the developmental category are measures of assistance, whether direct or indirect, designed to encourage agricultural and rural development and that are an integral part of the development programmes of developing countries. They include investment subsidies which are generally available to agriculture in developing country members, agricultural input subsidies generally available to low-income or resource-poor producers in developing country members, and domestic support to producers in developing country members to encourage diversification from growing illicit narcotic crops [4].

The SCM Agreement and AoA are multilateral rules outlining the discipline use of subsidies. By way of contrast, the EU's treatment on its members' use of subsidies, i.e. "state aid", bears comment. EU rules on the treatment of EU subsidies are specified under the Law on State Aid (last updated in the Treaty of Lisbon, 1 Dec 2009).

Under Part Three: Community policies, Title VI: Common rules on competition, taxation, and approximation of laws, Chapter 1: Rules on competition, Section 2: Aids granted by States, Article 87 states:

1. Save as otherwise provided in this Treaty, any aid granted by a Member State or through State resources in

any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member states, be incompatible with the common market [5].

- 2. Aid deemed compatible with the common market:
- (a) aid having a social character, granted to individual consumers, provided that such aid is granted without discrimination related to the origin of the products concerned:
- (b) aid to make good the damage caused by natural disasters or exceptional occurrences;
- (c) aid granted to the economy of certain areas of the Federal Republic of Germany affected by the division of Germany, in so far as such aid is required to compensate for the economic disadvantages caused by that division [5].
- 3. The following may be considered to be compatible with the common market:
- (a) aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment;
- (b) aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State;
- (c) aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest;
- (d) aid to promote culture and heritage conservation
 where such aid does not affect trading conditions and
 competition in the Community to an extent that is
 contrary to the common interest;
- (e) such other categories of aid as may be specified by decision of the Council acting by a qualified majority on a proposal from the Commission [5].

Article 88 states:

- 1. The Commission shall, in cooperation with Member States, keep under constant review all systems of aid existing in those States. It shall propose ... measures required for ... the functioning of the common market [5].
- 2. If ... the Commission finds that aid granted by a State or through State resources is not compatible with the common market (Article 87), or that such aid is being misused, it shall decide that the State concerned shall abolish or alter such aid ...[5].

If the State concerned does not comply with this decision within the prescribed time, the Commission or interested State may ... refer the matter to the Court of Justice [5].

3. The Commission shall be informed, in sufficient time to enable it to submit its comments, of any plans to grant or alter aid. If it considers that any such plan is not compatible with the common market having regard to Article 87, it shall without delay initiate the procedure provided for in paragraph 2. The Member State concerned shall not put its proposed measures into effect until this procedure has resulted in a final decision [5].

Thus, EU law on state aid is clearly aimed at avoiding the undermining of internal competition among nation states within the common market and is not aimed at addressing any economic effects outside the common market. The large-country case that is potentially the EU for a particular good, however, does imply that state aid, while complying with EU goals, may be incompatible with its multilateral obligations.

Competition for Subsidies: The case of the US

In the US, by contrast, there is no federal law that specifically addresses measures taken by any state to provide incentives to the benefit of a state, even if it has negative economic consequences to another state within the US. In other words, there is no provision in the US law to prevent "state aid" as articulated by the EU.

The following example illustrates the case of leaving subsidies undisciplined, even within the territory of a particular country.

In West Point, in the US state of Georgia, economic fortunes took a turn for better when Kia Motors, the South Korean carmaker, announced it would build a \$1.2bn [€1bn] assembly plant near the town. The town celebrated the investment and the 2,800 jobs it created. Outside West Point not everybody was so happy about the town's windfall. Kia was lured to Georgia by \$400m of tax breaks and other economic sweeteners paid out of state coffers [6].

Critics question whether the \$160,000 cost of bringing each Kia job to the state represents a wise use of taxpayers' money and argued the deal puts existing Georgian firms at a disadvantage. "It is objectionable to offer incentives to a single company at the expense of ordinary taxpayers and businesses who do not get the same benefits", says a retired North Carolina Supreme Court judge and campaigner against corporate tax breaks. The Kia deal was among the biggest in a wave of investment incentives offered to big business by jobhungry US states. As the giveaways become bigger and the inter-state rivalry more cut-throat, the doubts grow about the economic merit of such deals. Companies become addicted to incentives and states forget how to attract investment without offering them [6].

The issue was thrust onto the national agenda when the US Supreme Court heard arguments about \$280m of tax breaks by Ohio to secure a DaimlerChysler jeep plant in 1998. Activists who brought the case claimed the incentives were unconstitutional. Similar deals across the country would be open to challenge if the Court agreed. Analysts expect the Court to throw the case back to the Ohio courts, but the case served as warning to business and government that these incentives are facing mounting scrutiny [6].

Georgia was desperate to win the Kia plant after missing out on earlier investments by foreign carmakers in the south. The state lost 5,000 jobs from the closure of two Ford and General Motors plants near Atlanta, increasing political pressure on the Governor to create new jobs before his bid for re-election. But Georgia faced stiff competition from Tennessee, Kentucky, South Carolina and Mississippi, sparking a bidding war to offer Kia the most generous incentives. Georgia won by offering \$195m in tax breaks and credits, \$60m to buy and prepare land for the factory, \$57m in improvements to local transport infrastructure and \$71m to build and fund a training centre for recruits [6].

The Development Authority of LaGrange, the neighboring town, said the deal would benefit the entire state by creating a new industrial cluster to fill the vacuum left by abandoned textile mills. Kia promised to bring five of its suppliers to create an additional 2,600 jobs. But the head of Good Jobs First, an advocacy group, said there was little evidence that incentives encouraged sustainable growth. "Mississippi offered these deals for decades, but still ranked 49th of 50 states in per capita income" [6].

Opponents argue that states should focus on making their entire economies more competitive. Offering tax breaks is admitting there is something wrong with the tax system. If tax rates were low for all businesses additional incentives would not be needed. Georgia's Dept. of Economic Development would prefer an incentive-free environment, but as sweeteners are offered by other states, Georgia must do likewise. Many states want to stop playing the incentives game, but none wants to be first to stop [6].

Thus, if the absence of disciplines on subsidies at the sub-national level (e.g., regional level) can distort competition at the national level, then the loose enforcement of multilateral subsidy rules can distort international markets and trade.

2. ECONOMICS OF SUBSIDIES AND DOMESTIC SUPPORT

To simplify, the analysis of the economic, trade and welfare efforts of subsidies and domestic support is limited to the small-country case under the condition of a perfectly competitive market. The intention is to focus on the government's policy objective and how the program affects the domestic market. Of course, a subsidy program can have implications for trade and those effects influence the policy objective because there is an interplay between domestic support and market access. Thus, some subsidy or support will require complementarity of a trade policy instrument. Thus, it is also useful to highlight the effects of agricultural programs in large countries when world markets are affected.

Suppose that a government decides to protect or support a particular sector in the domestic economy. Furthermore, the objective is to ensure some targeted level of production is met. This can be achieved by supporting the output price, subsidizing inputs (or a tax incentive) to support production, or through the provision of an income support conditional on the targeted level of output.

In figure 1 the case for protecting/supporting a sector is presented for a net importing country. The base situation is the free trade equilibrium. Under free trade, $[Q_S]_{FT}$ is the level of production but, for whatever reason, policymakers have decided that the level of production that is inadequate and that $[Q_S]_1$ is more appropriate for society. The issue is to determine which policy instrument is most appropriate to achieve the objective by comparing trade welfare effects.

First, it must be noted that any policy intervention results in a redistribution of income, taxing some agents while supporting others. Consider a trade policy instrument aimed at protecting the sector. A specific tariff of the rate $[P_D - P_W]$ would encourage production to the desired level, $[Q_S]_1$. Producers are supported by a value equal to area (a) and consumers would be taxed equivalent to a value equal to area (a+b+c+d+e) as reported in table 2.

Similarly, a price support program would intentionally set an administered price at P_D to encourage output at $[Q_S]_1.$ However, to ensure the administrative price is not undercut on the domestic market by imports, a tariff of rate $[P_D-P_W]$ would be necessary. In other words, the price support scheme requires tariff protection and tariff protection provides price support. The economic, trade and welfare effects are identical in this case: there is price support equal to tariff protection, $[P_S-P_W]=[P_D-P_W];$ quantity supplied at $[Q_S]_1,$ quantity demanded at $[Q_D]_1,$ and quantity imported at $[Q_M]_{P-S}.$ and net welfare effects

equal to the dead-weight losses in production and consumption, area (b) and area (e), respectively.

benefit to the firm implied by the savings from lowering of cost of inputs.

Figure 1. Policy and programs aimed at a production target

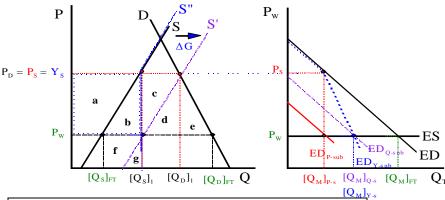


Table 2. Welfare effects under various programs whose policy objective is a targeted volume of output, [Qs] Import tariff regime Price support program Welfare Welfare Tax/subsidy Tax/subsidy equivalent estimate estimate equivalent ΔCS -(a+b+c+d+e) -(a+b+c+d)-(a+b+c+d+e) -(a+b+c+d) ΔPS +(a)+(a+b)+(a)+(a+b)ΔG +(c+d)Tax received +(c+d) Tax received Δ NSW -(b+e) DWL_S -(b+e) DWLs Production support program Income support program* 0 No tax ΔCS 0 No tax ΔPS +(f) Program cost +(a+b)+(a) ΔG -∆G Program cost -(a+b) Program cost Δ NSW $+(f) - \Delta G$ Benefit - cost -(b) DWL_O

Note: * Income supported at the same level as price support, $P_S = Y_S$

What is noteworthy is the role of the government. Because the price support requires tariff protection, the government collects tax revenue equal to area (c+d). The support received by producers is paid for by consumers and not by the government. Hence, this does not meet the legal definition of a subsidy despite one recognizing that the support producers receive is the result of a governmentadministered price set above the market price which is protected by a trade restriction. Table 1 shows the welfare areas associated with the different programs considered. A second program that appears in figure 1 is a production subsidy. In this case the objective is to increase output but without supporting the price. The government assumes the expense of reducing production costs for the producers, (i.e., ΔG is the budgetary outlay associated with the cost of the program, e.g., a subsidized input price or a tax exemption), shifting the supply curve to S' and increasing output to [Qs]1 at the prevailing market price, Pw.

The support to production to achieve a level of $[Qs]_1$ is a more targeted measure than supporting price. Producers are supported by the welfare value equal to area (f), while consumers are unaffected, paying the same price, Pw, and consuming $[Q_D]_{FT}$ as under the free trade equilibrium. The volume imported decreases relative to the free trade equilibrium to $[Q_M]_{Q-s}$ which is equal to $[Q_D]_{FT}$ - $[Qs]_1$. The excess demand (ED) under the production support is shown as a leftward shift to $[ED]_{Q-s}$, intersecting the horizontal ES curve at Pw, $[Q_M]_{Q-s}$.

This program would satisfy the legal definition of a subsidy because the cost of providing inputs below market prices to producers would imply a government outlay, which would appear in the national budget. That actual cost is unobservable in figure 1, but the shift in the supply curve is the result of a government outlay, ΔG , which is observable in the national budget. How the program affects net welfare depends on the cost of the program, ΔG , relative to the benefit to the producers, area (f), the

It could be concluded that the cost of the program would exceed the benefits. Otherwise, it would make sense for the market (investors) to fund producers' increased input use to increase output and profit.

Finally, an income support program might be considered. For comparison, let producers' income be supported at the same level of the price support, $Y_S = P_S$, but the income support is conditional on maintaining the desired level

of production, [Qs]₁. Overproduction is not allowed to prevent undermining the program. Thus, the production-limiting condition is like setting a production quota at [Qs]₁. The supply curve is kinked, rising from [Qs]₁ until it meets the original supply curve, S, and then traces it along S". Again, consumers are unaffected by the program, paying Pw and consuming [Qp]_{FT}. Producers receive an income support payment equal to [Ys – Pw] per unit at a total cost to the government equal to area (a+b). The support equivalent to producers is area (a) with part of the cost of the program lost as a dead-weight loss, the value equal to area (b).

The amount imported is the same as under the output support, with the excess demand curve kinked at the level of the income support, Y_S , intentionally set at the level of the price support, P_S . Below that price, the $ED_{Y\text{-sub}}$ curve slopes down by an amount equal to $D-[Q_S]_1$ until it hits ES at P_W , $[Q_M]_{Y\text{-}s}$.

Both the production support and the income support achieve the desired level of output without distorting price, Pw, which makes them less trade distorting. The import volume is greater than under the prices support — tariff protection equilibrium. The welfare effects are likely less costly for society as well as there are no dead-wight losses in consumption. However, there is not sufficient information to conclude by how much the cost of the production subsidy exceeds the benefits to producers.

Agricultural support

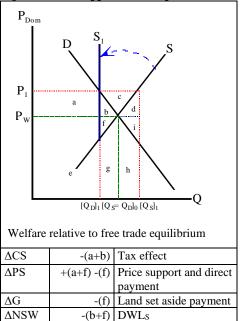
Support for agriculture in the post-World War II era until the conclusion of the UR-GATT was characterized by finding a means of controlling farm commodity surpluses. High war time prices and access to production technology rapidly expanded farm out in the late 1940s, particularly in the US. The surge in output exceeded the growth in demand, putting downward pressure on prices.

Across the mature economies, agricultural policy aimed at raising production to achieve a level of self-sufficiency and/or to bring up rural income levels in line with urban income levels. Over time, as the output objective was achieved, agricultural programs required land retirement schemes to reduce surpluses. For a net exporting country such as the US, foreign demand helped maintain sales, but increases in productivity in Europe and Asia, for example, weakened foreign sales and stocks began to accumulate.

In Europe, the Common Agricultural Policy's success helped convert the EC into a net exporter of some crops or to reduce its net importer status across a range of agricultural commodities. Heavy protection and support created surpluses that became a costly burden to governments which had to find a means of addressing the surpluses, stockpiling goods through stock interventions or turning to export subsidization. By the 1980s, US and EC surpluses produced a tit-for-tat export subsidy war in wheat.

Figure 2 illustrates the trouble with supporting price above the market price and the need for production controls. For convenience, the domestic market price is set at P_W initially where the market clears, $Q_S = Q_D$. When the government supports price above the market price at P_1 the result is a surplus of $[Q_S]_1$ - $[Q_D]_1$. The government now requires a program to address the surplus. There are four options: destroy the surplus which is an outright admission of a policy failure; distributing the surplus through a food program (e.g., a school lunch program), presumably without displacing the private sector; maintaining publicly-owned stocks, without displacing private actors; or compensating foreign sales of the surplus through an export subsidy at a cost of $(P_1 - P_W)$ for each unit sold abroad.

Figure 2. Price support under a production constraint



Source: modified from [7]

Rather than any of these options, suppose that government wanted to avoid the surplus by requiring producers to retire land, e.g., imposing a land set aside program. This would shift supply from S to S_1 , which kinks at $[Q_D]_1$. Ideally, the removal of land from production brings output in line with demand, with the market clearing at the price support, P_1 , and $D = S_1$ at $[Q_D]_1$. However, taking land out of production reduces producers' income. Relative to a free trade equilibrium, the land set-aside program has a cost to producers who lose an equivalent value of area (f). A government outlay in the form of a set-aside payment can compensate for the loss in whole or part. Assuming an outlay of the same value would leave producers indifferent in terms of their income. The net change in social welfare would be area (b), the dead-weight loss in consumption. Area (a) would be a transfer from consumers to producers and area (f) is a transfer by the government, a direct payment for the set aside loss.

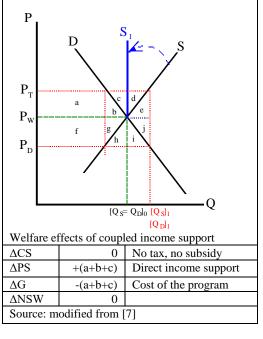
In reality, production controls were not an effective means of supporting price or reducing surpluses. First, set asides may have successfully taken land out of production, but it led to the most marginal land being removed. Second, land set asides with price supports encouraged intensification of agriculture as chemicals, improved seeds and other inputs substituted for land which improved yields on land

in production. As a result, supply shifted further to the right and restored the surpluses over time.

In the 1970s, the US pioneered coupled income support payments to farmers. Income was supported at prices above the market rate but only on a targeted level of output. Income was supported at an administered price, a target price (P_T), and a per unit payment based on P_T was made. That is, the income support was tied to the level of production, or that it was coupled.

For example, in Figure 3, the initial market situation is a market-clearing equilibrium, i.e., P_W , $[Q_S = Q_D]_0$. The government's intention is to provide support without distorting trade or creating a surplus situation. A target price is announced at P_T, but that the market clears without any other policy intervention (i.e., no price support). P_T would be a guaranteed government price for producers regardless of what they would earn from the market. Producers would increase production to [Qs]₁. The market clearing price would be at PD. Consumer expenditures would total PD · [Qs]1, which would be the revenue producers received from the market. Producers would receive a supplemental income support payment of (P_T – P_D) per unit from the government, resulting in a total government outlay of $[P_T - P_D] \cdot [Q_S]_1$ equal to the area (a+b+c+d+e+f+g+h+i+j). Such a program without production controls would prove to be very costly and taxpayers would take notice. The advantage of this program is that the market clears without a trade distortion and consumers are not taxed to support producers. The net welfare effects would still result in a loss of area (e+j) reflecting the dead-weight losses in production and consumption, respectively.

Figure 3. Coupled income support

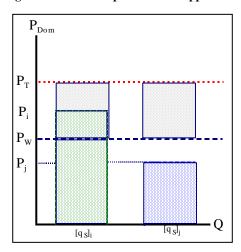


If instead the government needed to limit the cost of the income support program, a production quota could limit supply to the previous level, at $[Q_S]_0$, along S_1 . Producer income is supported at the guaranteed price, P_T , but market clears at P_W and $[Q_S=Q_D]_0$. The government's outlay for this program would be a per unit payment of (P_T-P_W) to the producer, or total income support payments worth area (a+b+c). Consumers would be unaffected, and the net social welfare change would be zero because the income support payment would be a pure income transfer (no change in the output level).

Now, suppose that the announced income support was not based on a rate known in advance. That is, the support would be based on the differential between the target price and the market price, but the market price is an average price of the good after it is sold. This the producer does not know in advance. What the producer does know is that there will be an income supplement if and when P_T is higher than the average market price in the future.

Let there be two producers (farmer 'i' and farmer 'j') of a specific commodity for which the government implements an income support program. To control the costs of the program, the government specifies the volume that is eligible for income support. To participate in the program each producer agrees to limits on their production, $[q_s]_i$ and $[q_s]_j$, respectively, for farmer 'i' and 'j'. These volumes could be established based on some historical average output per hectare. Anyway, $[q_s]_i$ and $[q_s]_j$ sum to the specified volume eligible for income support as depicted in Figure 4.

Figure 4. Semi-decoupled income support



Next, the government announces that the income support payment is based on the difference between the target price, P_T, and the average market price, P_w, over some specific period. The market price varies over the marketing year and each producer decides when to sell, based on their understanding of the market. To ensure that producers take an interest in marketing and selling at the highest price, the government can announce a lower limit on what the market price can be.

The market situation in this case shows that farmer 'i' sold at a high price, Pi, whereas farmer 'j' sold at a low price, P_j. The average of the prices is market price, Pw. Farmer 'i' earns revenue equal to $P_i \cdot [q_S]_i$ from the market while farmer 'j' earns $P_i \cdot [q_S]_i$. In addition to the revenue from the sales on the market, each producer earns an income support payment based on P_T-P_w. The total cost of the income support is equal to $[P_T - P_W] \cdot [q_i + q_j]$. By selling at a high price, farmer 'i' earns P_i – P_W from the market and again in income support. Farmer 'j' loses Pw - Pj by selling below the market price. Thus, an incentive to sell at a higher price is cooked into the program and the government can find other means to limit its support payout such as by specifying the average price during a period when prices are at their highest during the marketing year (and excluding the months around harvest when prices tend to be at their lowest). This would help ensure that the per unit cost, P_T - Pw, is low because the average price, Pw, would be at its highest.

In this semi-decoupled income support program, where the consumer does not have full knowledge of the per unit payment, consumers are unaffected in that the government does not directly influence the market price. Producers are supported through direct income payments based on some announced rate and market discipline is reinforced as producers are incentivized to sell at high prices. The advantage of such a program is when it is not

accompanied by trade policy (e.g., no tariff protection or subsidies for exporting). Unfortunately, the reality is that trade policy was always a feature of agricultural income support programs, making the payment more tied to production. Moreover, the fact that income supports are transparent, an observable budgetary outlay, makes it politically more vulnerable to taxpayer backlash. Furthermore, producers complained that income support made producers "employees" of the state, losing their independence to make their own production decisions. This, producers argued, was more the case when payments were most decoupled from production.

CASES OF INDUSTRIAL SUBSIDIES

Cases at the WTO involving subsidies are relatively few. Agricultural subsidies were negotiated by WTO members and were not subject to dispute settlement if the subsidy value remained below their bound rate. Subsidies on industrial goods are allowed under very strict conditions. Thus, subsidy cases tended to be high-profile cases involving industrial goods. An important example is the counter claims by Boeing and Airbus of accusing each other of illegal subsidies in the manufacture of civilian aircraft.



Government support for developing new passenger aircraft first emerged as a contentious issue back in 1988. Airbus was beginning to eat into Boeing's market with its A320 single-aisle jet—the sort of plane that accounts for four out of five planes sold. An agreement in 1992 limited government launch aid to 33% of the cost of developing an aircraft, to cap subsidies to Airbus, while the support to Boeing from the Pentagon and NASA was held to 3% of turnover. But Boeing tore up the deal in 2004 as Airbus prepared to launch the A380 super-jumbo (to challenge Boeing's 747) and the A350 (to vie with the 777 and 787). This was the restart of the long-running and tortuous transatlantic trade dispute [8].

In Jun 2010, the WTO dispute settlement body in response to a US complaint, announced that Airbus, Europe's aircraft-making champion, received billions of euros in illegal subsidies that allowed it to snatch half the market for big passenger jets. It found that some government support to Airbus, in the form of repayable "launch aid", was illegal [8].

In the tit-for-tat nature of dispute, the EU filed a complaint about Boeing's subsidies. In Sep 2010 the WTO found that much of the \$22 billion benefit Boeing enjoyed from tax breaks and Department of Defence and NASA research contracts was also an illegal subsidy because they violated trade rules. Airbus long complained that, whereas it repaid the launch aid it received with interest, Boeing never had to pay back a cent [8].

That was true but disingenuous. EU governments shoulder a hefty share of Airbus's risk and the loans were cheaper than private investors would offer. Despite Boeing's Jun 2010 win, it appealed against some aspects of the decision. Airbus, in turn, claimed that about 70% of Boeing's allegations had been dismissed by the WTO, which also

failed to detect any price undercutting by Airbus as a result of the subsidies [8].

The scene was set for further appeals and counter claims, which could last for years. This was not just the biggest and most intractable trade row to come before the WTO. It developed into a political battle. If governments on either side were to levy countervailing import duties (as the WTO allows when an illegal subsidy persists), it could have sparked a disastrous trade war [8].

In 2011 the WTO upheld a ruling that Airbus benefited from some illegal government subsidies to develop almost its entire range of aircraft but overturned a more serious finding that the A380 super jumbo had received prohibited export subsidies [9].

In its original report, the WTO found that the loans on the A380 were structured so that they had to be repaid only upon successful aircraft sales, and therefore constituted prohibited export subsidies – the most egregious form under the trade body's rules [9]. Boeing calculated that Airbus received \$18bn in illegal subsidies, including \$4bn for the A380 aircraft. Airbus, a subsidiary of EADS, disputed the figure, pointing out that most of the state subsidies were in the form of repayable loans, an instrument that in principle the WTO has declared legal. However, Airbus conceded that the latest ruling upheld earlier findings that the interest rates charged on some of the loans provided by the UK, France, Spain and Germany amounted to a subsidy as they were not competitive with market rates. The WTO gave the EU six months to comply [9].

The WTO gave no guidance on how the sins it exposed should be remedied. An Airbus executive observed that the legal battle could end in one of three ways. The two sides could negotiate a bilateral deal like the previous one, something Boeing rejected out of hand. They could get bored and give up. Or they could carry on fighting indefinitely, to the benefit of no one but lawyers [8].

Changes to the aircraft business were also increasing pressure for a settlement. Manufacturers in Russia, China and Japan are joining Brazil's Embraer and Canada's Bombardier in the market for big passenger jets. Most of these newcomers get government support [8].

Indeed Boeing was no stranger to launch aid from government. Japanese manufacturers making a third of Boeing's 787 received such aid from the Japanese government. And Boeing was in line to get such help directly from the US government back in the days when it was considering building a supersonic rival to the Anglo-French Concorde [8].

Privately, EU officials acknowledged that they would probably have to adjust the interest rates on government loans to bring them into line with commercial rates. The outcome could have implications for the global aviation industry as Russia, China and Brazil try to bolster their own commercial aircraft champions, say executives, but they warn that this dispute could drag on for years [9].

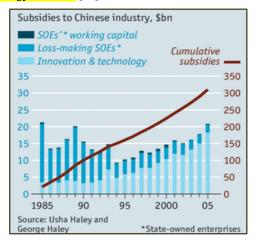
The WTO still had to rule on an appeal on a separate report that found Boeing had benefited from at least \$5.3bn in US subsidies [9].

In addition to high-profile transatlantic cases, accusations of emerging economies using subsidies have put strain on the WTO's DSM. As a large economy, China's trade policy regime attracts much attention.

By the first half of the 2000s, China had become the workshop to the world. It is the global economy's most formidable exporter and its largest manufacturer. The explanations for its success range from a seemingly endless supply of cheap labour to an artificially undervalued currency. However, Usha and George Haley¹ of West Virginia University and the University of New Haven, pointed to another reason for China's industrial dominance: subsidies [10].

The Chinese government does not report all subsidies made to domestic industrial firms, so the Haleys plugged the holes with information from industry analysts, policy documents, non-governmental outfits and companies themselves. By looking at the gaps between end-user prices and benchmark prices, they cobbled together numbers on many of the subsidies enjoyed by the biggest industrial state-owned enterprises (SOEs) [10].

On their conservative calculations, China spent over \$300 billion, in nominal terms, on the biggest SOEs between 1985 and 2005 (see chart, subsidies to Chinese industry). This help often came in the form of cheap capital and underpriced inputs unavailable to international rivals. The glass industry got soda ash for a song, for example. The auto-parts business got subsidies worth \$28 billion from 2001 to 2011 through cheap glass, steel and technology; the government promised another \$10.9 billion by 2020. The subsidies to the paper industry topped \$33 billion from 2002 to 2009. All industrial SOEs benefited from energy subsidies [10].



The Haleys chronicled the harm done by these subsidies to foreign competitors. Rivals were forced to go up against national champions enjoying subsidised inputs and seemingly free money in markets that are protected. Worse, the bosses of Chinese SOEs were not in business principally to make a profit: they are often encouraged by the government to pursue other goals, such as resource acquisition, foreign policies and technology transfer, regardless of cost [10].

Indeed, these barriers to creative destruction were even higher than they first appeared, because state subsidies extended beyond state firms. Another study by Fathom China, a research firm, argues that although small and medium-sized private firms were often starved of capital in China, many big private firms were at the official trough. The researchers looked at 50 prominent private-sector Chinese firms, and found that 45 received subsidies (see chart, subsidies for selected firms). Top of the list was Geely, an automobile firm that bought Sweden's Volvo, which on Fathom's reckoning would have lost more than half its net profits without official aid [10].

¹ Haley, Usha and George Haley, Subsidies to Chinese Industry, UK: Oxford University Press, April 2013.

2011 Company	Subsidy as % of net profit	Subsidy \$m
Geely Automobile	51.3	141
China Yurun Food	36.1	84
Uni-President	18.2	9
Sihuan Pharmaceutical	14.5	19
Wuxi PharmaTech	12.2	10
Want Want China	11.3	47
Hengan International	10.3	36
Gome	9.2	27
China Shanshui Cement	7.6	28
China Gas Holdings	7.2	7

Such distortions breed indiscipline and overcapacity. An effort to sponsor clean-energy champions was partly responsible for a global glut of solar panels, for instance, forcing even Chinese manufacturers such as Suntech into bankruptcy. A similar problem loomed in the steel industry, where the country's excess capacity of some 200m tonnes surpassed the entire capacity of Japan's steelmakers in 2013 [10].

Leaders in Beijing tried to encourage consolidation among SOEs but, as the Haleys note, "the central government's removal of subsidies has often resulted in the provincial governments increasing them." The unhappiest consequence of China's subsidy policy may be that it created beasts too powerful to rein in [10].

In 2012, the Obama administration lodged a trade complaint alleging that China unfairly subsidised car-part exports. The timing coincided with elections in the US, when China-bashing tends to be at its peak. The dispute over Chinese export subsidies was a real one. The US carparts industry—which supplied carmakers with everything from seats and bumpers to axles and electronic devices—is big, with exports of close to \$60 billion in 2010. The industry was a major employer in several states, but had endured years of gradual decline. In 2001, five of the top ten global firms were American; by 2009 just two made that list. The first years of the credit crunch hit employment especially hard, with the US industry shedding around 200,000 jobs—some 30% of its total—between 2007 and 2009 [11].

The Obama Administration complained that this related to "export bases" set up across 12 Chinese municipalities. In these areas, the US complaint alleged, firms were handed \$1 billion in government grants, tax breaks, and subsidised loans between 2009 and 2011, on the condition that they exported the car parts they produced. The WTO has ruled against export subsidies for manufactured products and has interpreted them broadly [11].

China lodged its own complaint at the WTO against the US in September 2012. Many Chinese goods face "countervailing" duties when they are shipped to the US. These measures, applied to paper, steel, tyres and chemicals among others, are designed to offset China's subsidies [11].

These tit-for-tat complaints against existing trade barriers may have caused headaches for the WTO's dispute settlement mechanism (DSM), but it is better than the alternative, a fight in which countries put up new barriers [e.g., the tit-for-tat trade war initiated by the Trump

administration in 2019]. The optimistic view was that a flurry of WTO disputes would actually reduce protectionism, unclogging trade channels and reassuring the majority of Americans who told the Pew Research Centre's Global Attitudes Project that their country's overall trade deficit with China was a "very serious problem" [11].

The incoming Trump administration in 2016 took a more aggressive stance toward China and any other countries he considered rivals by taking products, jobs and companies from the US. Rather than take up grievances at the WTO through the DSM, Mr. Trump addressed perceptions of unfair trade practices, among others Chinese subsidies and its theft of intellectual property that resulted in the loss of jobs and industrial activity, through bilateral trade sanctions. In 2019, threats of trade wars on several fronts were launched against allies and rivals alike. The US-China trade war involved a tit-for-tat tariff escalation. Other shots that were fired resulted in renegotiated trade deals or fell short of tit-for-tat escalation. Nevertheless, the Trump administration's action was a reminder of the consequences of pursuing unilateral rather than multilateral action.

3. AGRICULTURAL SUBSIDIES: COUNTRY-SPECIFIC COMMITMENTS

As noted, the UR-GATT implementation period, 1995-2000, was relatively quiet for cases involving agricultural subsidies because Member states respected their bound rate ceilings in compliance with their obligations. When negotiations during the Doha round started, the agenda for the new commitments had to be agreed and given the expanded and varied membership, addressing agricultural subsidies was a top priority. But even so, economists were not in agreement on what the implications of eliminating subsidies would do to developing countries' welfare.

Rich countries were under pressure to end their farm subsidies during the Doha round talks, but not all poor countries would be benefitted by their removal. Burkina Faso, in west Africa, is an example of a country that would benefit because it depended on cotton for about 40% of its merchandise exports. According to the International Cotton Advisory Committee, a body that advises governments, world prices would have been about 26% higher in the 2001-02 season were it not for the \$4 billion the US subsidized its cotton growers [12].

However, Jagdish Bhagwati, an economist at Columbia University and defender of globalisation, was wary of the effects of eliminating subsidies. Agricultural subsidies are certainly undesirable, he wrote in the *Far Eastern Economic Review*. But the claim that removing them will help the poorest countries is "dangerous nonsense" and a "pernicious" fallacy [12].

Arvind Panagariya², a colleague of Mr Bhagwati's at Columbia University, agreed. His argument rests on a surprising observation: most poor countries are net importers of agricultural goods. A study in 1999 found that 33 of the 49 poorest countries imported more farm goods than they exported; 45 of them were net importers of food. Subsidies depressed the price of agricultural products on world markets. That hurts rival exporters, as Burkina Faso can testify. But importers gained [12].

Thus, the repeal of subsidies should benefit exporters but hurt importers. An IMF study by Stephen Tokarick³

² Arvind Panagariya, "Agricultural liberalisation and the developing countries: debunking the fallacies", Sep 2005, available at http://www.columbia.edu/~ap2231/

³ Stephen Tokarick, "Measuring the impact of distortions in agricultural trade in partial and general equilibrium". IMF working paper 03/110, 2003.

estimated the effect of OECD countries scrapping their subsidies (but keeping their tariffs). Brazil and Argentina, both strong agricultural exporters, would gain. The rest of Latin America would lose. India would benefit a bit, but the rest of South Asia would be worse off. Sub-Saharan Africa, North Africa and the Middle East would also lose [12].

The impact on different households within a poor country is another question. William Cline⁴, in a study for a US think tank, pointed out that poor households tend to be rural, and rural households tend to sell more food than they eat. For them, rising farm prices are to be welcomed. It is the urban poor that should worry—and maybe the rulers of poor and fragile nations, who have traditionally striven to keep food prices low. Hard-pressed peasants are less of a threat than disgruntled city folk within a stone's throw of the presidential palace. An end to OECD farm subsidies, however, would transfer money from town to countryside [12].

If such a transfer is to be welcomed, Mr Panagariya asks, why wait for OECD countries to cut their subsidies? Poor countries could take matters into their own hands by slapping a countervailing tariff on the subsidised produce. That would raise the domestic price of food, benefiting rural households. It would also be a neat way of raising revenue at rich countries' expense [12].

Such a tariff would only raise farm prices at home, of course. Mr Cline thinks most poor countries would benefit from a rise in the relative price of agricultural goods in the world market. Many poor countries possess an underlying comparative advantage in farm goods. Yes, they tend to be net importers of food. But that is deceptive. Thanks to the large aid flows such countries receive, they tend to be net importers of everything [12].

Mr Panagariya again demurs. He points out that many poor countries enjoy privileged access to the sheltered markets of the EU. Thus, they already enjoy higher prices for their exports than they could expect to find on the open market [12].

The sugar producers of Mauritius, for example, sold their produce behind the EU's steep import barriers at three times the market rate. By some estimates, the island owes almost 30% of its export earnings to the preferences the EU bestowed upon it. But these privileges were not without cost. The World Bank reckons that every \$1 that a country such as Mauritius gains from its trade privileges costs the EU and the US \$6. As an aid programme, it was not terribly efficient [12].

The paradox of the Doha round was that the members fighting hardest to retain subsidies, such as the EU, were those with most to gain from abolition. Poor countries, on the other hand, stood to gain more from cuts in tariffs. If they also liberalised their own agricultural trade, there would be further gains [12].

The US's cotton subsidies deserved to be addressed "ambitiously, expeditiously and specifically", as the WTO agreed. But no less ambition and expedition must also be mustered in the fight against the EU's high tariffs. In 2005 the WTO upheld its ruling that such subsidies distorted trade and breached limits agreed in 1994. The Bush administration proposed deep cuts in farm subsidies in its budget. Furthermore, a promise to eliminate rich countries' export subsidies (eventually) and to make a "substantial" cut in other kinds of handouts was vital to reviving the Doha round of global trade talks [12].

⁴ William Cline, "Trade Policy and Global Poverty". Centre for Global Development and Institute for International Economics, 2004. During the Doha round negotiations, the US administration prided itself on taking an aggressive liberalising stance in farm talks [13]. Rob Portman, then US trade representative, offered to cut the US's farm-production subsidies ceiling [bound AMS] by 60%, which stood at \$19.1 bn, if the EU agreed to cut its permitted subsidies, which totalled more than \$75 bn, by 80%. These were the most trade distorting subsidies. Mr Portman also suggested the EU limit other subsidies, which do not distort trade as heavily [e.g. blue box], to 2.5% of the value of agricultural production. These two limits provided plenty of scope for creative accounting. Even as the US lowered the ceiling on the most trade-distorting subsidies, some of this money would be reclassified as something else [14].

To the big agricultural exporters, such as Brazil, handouts to rich-world farmers, however galling, matter less than access to rich-world consumers [14].

US administrations have long argued that the solution to farmers' problems is expanding markets abroad. The reality is more complex. While some corn, soyabean and big dairy farmers may be efficient enough to compete in world markets without subsidies, many of their counterparts in rice, sugar and fruit and vegetables are not. Even where US farm productivity is better than its competitors, higher costs and land prices wipe out the advantage. In rice, for example, US farmers have the highest yields in the world, of some 7 tonnes a hectare. According to a UN conference in 2004, their unit cost of production per tonne was \$331 compared with \$79 for Vietnam and \$70 for Thailand [13].

Such farmers have often been bailed out by subsidies, which the Organization of Economic Co-operation and Development says were worth 33% of rice formers' gross receipts in 2002-04. That approach, particularly those subsidies aimed at promoting exports, were under attack from litigation in the WTO, including a successful case against US cotton exporters brought by Brazil, one of the world's leading farm exporters. Uruguay, with Brazil's support, threatened to bring a similar case against the US to the WTO over rice subsidies [13].

Overall, the US subsidises its farmers less than many rich countries: in the early 2000s subsidies accounted for 17% of gross farm receipts compared with an average of 30% for OECD nations. But the export orientation of its farmers raises hackles elsewhere. Pedro de Camargo Neto, the Brazilian lawyer who put together the cotton case, regards the US as a worse offender than the EU, since subsidised US farmers compete with Brazilians in global markets. "Europe is a closed market, certainly, but the US is an unfair competitor," he says [13].

A World Bank study found that 92% of the benefit to the developing world from rich nations' farm liberalisation would come from cutting tariffs, not reducing or reforming subsidies. This placed the US in conflict with the EU – not just because the US wanted access to EU markets but because the EU emerged as one of the strongest of those holding out against a multilateral tariff reduction formula in Doha that would have cut higher import taxes across the world by more than lower ones [13].

While the EU's farm subsidies remain larger than those in the US, it pointed out that it moved in the direction of making them less distorting of trade. The latest version of the Common Agricultural Policy moved from the traditional regime of price supports towards making direct payments to farmers, "decoupled" from production. This reduces the incentive to overproduce and drive down price by dumping surplus produce abroad [13].

The US, on the other hand, wanted to change the rules in the WTO to allow some of its current subsidies to continue. In particular, the US wanted to be able to keep a programme known as "counter-cyclical payments", which compensate farmers for falls in prices. Such payments, together with related marketing loans, increased six-fold in 2004 because of lower food prices. The US argued that, because such programmes were in essence a form of insurance and merely smooth farmers' incomes over time, they do not lead to overproduction [13].

Critics say the programmes act as a permanent production subsidy. In the 2005 OECD assessment of agricultural policies in its member countries, it argued: "Although potentially less distorting, counter-cyclical payments... continue to be significant and limit market signals" [13].

Handouts for US farmers were \$256 billion between 1995 and 2012. The fattest subsidies went to the richest farmers. Every five years, Congress mulls a new farm bill. To confuse matters and [politicize the process], the bills typically address two entirely separate problems: the plight of the poor (to whom the federal government gives food stamps) and the unpredictability of farming (which the government seeks to alleviate). The politics pits rural states that prefer farm programs that favor producers over payment in the form of food stamps [15].

Proponents of a bill in 2013 boasted that it ended "direct payments" to farmers. These are the subsidies paid to producers of wheat, corn, cotton, rice, peanuts, etc, regardless of whether they actually grow these crops—or even plant them. Other plums, such as "counter-cyclical payments" (extra handouts when prices are low) were also to be eliminated [15].

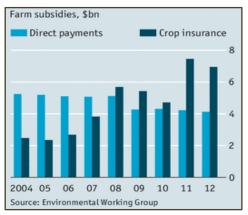
The bill offered a "bait and switch" trick. Direct payments were the bait, he explains, but they were replaced by an expanded programme of subsidised crop insurance. The CBO calculated that more than two-thirds of the \$50 billion saved by cutting direct payments would be used to boost other farm programmes, such as crop insurance and disaster relief. If crop prices fall, insurance payouts will explode, especially when crop prices were near historic highs as in 2013 [15].

Federal crop insurance is not new; it began in the 1930s, but its cost rose from \$2 bn in 2001 to \$7 bn in 2012 (see chart, farm subsidies). Taxpayers paid two-thirds of each farmer's previous, and most of the claims. The 2012 drought led to crop-insurance payouts of \$17 bn. Uncle Sam shouldered three-quarters of that. Insurance already costs more than direct payments, and there is no limit to how much of it farmers may receive. The bigger the farm, the bigger the trough. (If taxpayers need insurance against misfortune, they must pay for it themselves, of course) [15].

Subsidised crop insurance is also bad for the environment. Craig Cox of EWG, a green pressure group, worries that it spurs farmers to take greater environmental risks, for example by farming on flood plains or steep hills. He fears that a "pumped-up" version will create even more perverse incentives [15].

In the early 1990s, the EU had already begun reforming its Common Agricultural Policy (CAP). The MacSharry Reforms began the rethink of the logic of high tariff protection and price supports that produced mountains of surplus commodities that required stock interventions and export subsidies. It involved more coupled income support

with production controls (compliant with the WTO's blue box support payments) which aimed at reducing the surpluses but acknowledged the need for export subsidies. With a view to the Doha round of negotiations, further CAP reforms were introduced under Agenda 2000, which increased coupled direct support, reduced price support to allow increased market access, and lowered export subsidies. The Fischler Reform in 2003 created a single payment scheme where decoupled income payments, with less production requirements, targeted environmental objectives and rural development. This further reduced export subsidies.



In 2010 the EU Commission kicked off a new debate on the reform of the CAP—a mere 40 years or so after the first such debate began. As always, France was the self-appointed leader of the pro-CAP camp. It remained the biggest single beneficiary, scooping up about a sixth of the EU farm budget of €57 billion in 2010. The French president said France should be "flexible" over subsidies, but "unbending" in its demands for more regulation of market prices and for "community preference" (ie, favouring EU produce over imports) [16].

The CAP reform comes as the taps on farm money for eastern Europe open (new members had only partial payments in their early years). In 2013 France would become a net contributor to the CAP—and, coincidentally, be more open to budget rigour. The switch from taxpayers' cash aid to price support via "community preference" is a step back from reform [16].

EU leaders agreed that the overall budget should focus more on competitiveness. There was talk of money for non-CAP things like research, innovation and "green" industries. Rich countries that bankrolled the EU, including Germany, the UK and France, said that the next overall budget must remain no bigger than what it was: about 1% of overall EU national income. So, the CAP was to get smaller proportionally (agriculture accounted for some 40% of EU spending, down from two-thirds 20 years ago) [16].

Yet a smaller CAP budget would also be under greater pressure. Even with payments at full flow, there were huge inequalities between new and old members. That must change, says the new agriculture commissioner, Dacian Ciolos, a Romanian. The CAP must be "fair and transparent" if all Europeans were to support it. Mr Ciolos talked of the need to compensate farmers for "public goods" such as landscape management and animal welfare. Voters need to understand that farmers cannot live by selling their produce alone [16].

Bruno Le Maire, the French farm minister, advanced a bolder argument. "The legitimacy of CAP funding is derived exclusively from the environmental and foodsafety demands we make of our producers," he declares. Yet in the next breath, he talked of the "strategic" goal of securing the "total food independence" of Europe. The

Chinese were buying up millions of hectares of Africa to grow food, he noted. But is it coherent to scaremonger about food security in Europe and yet to call for less intensive (and thus less productive) agriculture? Europe has made an "idealistic" choice, Mr Le Maire says cheerfully, and an "expensive" choice: to produce more food and pay attention to the environment [16].

Such rhetorical leaps and pirouettes conceal something more pragmatic: a drive by CAP supporters to find mechanisms that do not involve big subsidies but still stabilise the incomes of farmers. Paolo De Castro, chairman of the European Parliament's agriculture committee, says no country wants a bigger EU budget, so CAP reform "is not a question of more money, it means more regulation." The EU needs "better market instruments". Mr Le Maire is frank that French farmers long for a return to price controls, production quotas and other tools of state planning. Those old ways are gone, he said. Instead he paints a corporatist vision of managed markets, in which "producer organisations" fix maximum and minimum market prices (this would mean changing EU competition rules). Alongside EU-subsidised insurance for farmers, there could be new "adjustment funds" to smooth variations in farm revenues, with governments and farmers putting aside money when things are going well, for release in leaner times [16].

Mr Le Maire fudges just what he means by "community preference". It could mean a tax on imports that do not meet EU standards, he says. Or it could mean more precise labelling (to encourage consumers to buy local produce and shun imports), or distribution networks to favour local sales. Better to play to Europe's strengths, said Mr Ciolos: local production and quality. His big idea was CAP mechanisms that help small farmers sell directly to local shoppers, bypassing big supermarket chains [16].

The Germans like the idea of the EU compensating farmers for higher Euro-standards, but are wary of market-meddling (and not sure who would pay). CAP reformers used to dream of simply slashing the farm budget. But they also favoured direct cash support for farmers because it is visible and so stirs up political debate. By contrast, price regulation and obscure trade barriers are harder to spot and more burdensome to the poor [16].

In Japan, by contrast, direct payments to hundreds of thousands of farmers were at the heart of its agricultural policy since 1970, when the government began to prop up prices by subsidising production of table rice according to annual estimates of demand, while encouraging shifts to other crops such as wheat, soybeans or rice for animal feed. Yoshimasa Hayashi, agriculture minister, announced in 2013 that subsidies for producing table rice tied to quotas would be scrapped by 2019. A separate system of payments to rice farmers, introduced by the previous government in 2010, would also be abolished and replaced by a fund to support agricultural infrastructure in villages particularly affected by the changes, he said. The package amounted to "a historically great transformation", said Akira Amari, economy minister. The reforms should spur consolidation of small, individually owned paddies into larger, more productive fields, making Japan's farmers more competitive on international markets, he said [17].

Japan's government approved a plan to overhaul its decades-old system of handouts to rice farmers, signalling progress on a much-trumpeted policy goal amid negotiations with the US and 10 other partners (such as Australia and Vietnam) in the Trans-Pacific Partnership (TPP), a regional trade pact. "It is essential to change farm policies to enable farmers with good management abilities to become financially independent," said Mr Amari. The decision to end the subsidies came as Japan was deep in talks under the TPP. Japan's complex system of subsidies

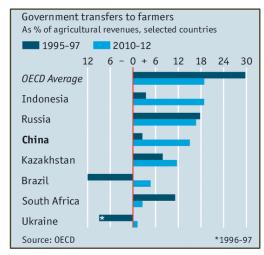
and tariffs, which combined to guarantee farmers' incomes well above those of most other rural households, was a source of friction in TPP negotiations [17].

Under the then current system, farmers producing rice for staple food received a subsidy of ¥150,000 (\$1,480) per hectare after each harvest, while producers of rice for flour or animal feed got ¥800,000 per hectare. If the new law is passed as planned, the subsidy for staple rice would be steadily cut to zero by fiscal 2018. The basic subsidy for flour or feed rice would remain the same, rising to ¥1.05m if yields were better than average. An official at the ministry of agriculture, forestry and fisheries said that the shift should encourage farmers to think less about meeting shrinking demand at home and more about exporting [17].

Developing countries farm subsidies

The total value of support given by the Chinese government to farmers exceeded that of any other country: \$165 billion in direct and indirect agricultural subsidies in 2012. The next highest totals were those of Japan at \$65 billion and the US at just over \$30 billion, according to research by the OECD. On a relative basis, however, China's support was more in line with global norms. Subsidies as a share of farm income were about 17%, rapidly catching up with the average for the OECD. The most lavish spenders include Japan, South Korea and Switzerland, where subsidies accounted for more than half of farm income [18].

More troubling is the trajectory (see chart, government transfers to farmers). Among major emerging markets tracked by the OECD, China is second only to Indonesia in the rate of its subsidy growth. China's farm support rose from 1.4% of GDP in 1995-97 to 2.3% in 2010-12. It is moving in the opposite direction from developed countries, which are gradually reducing such support. OECD average support fell from 1.6% of GDP in 1995-97 to 0.9% in 2010-12 [18].



There are also concerns about the kind of support provided by China. Even those who advocate less intervention in farming by governments acknowledge that it can play a useful role in mitigating boom-bust cycles. The challenge is to design support that minimises distortions. Schemes that lead to more investment in yield enhancements or that provide flat subsidies, regardless of production levels (i.e. decoupled), are best. Those that encourage farmers to plant crops (coupled) even if real demand is weak are harmful [18].

The OECD calculates that nearly 70% of Chinese subsidies are of the most distorting sort. For example, the government guarantees minimum purchase-prices, well above global levels, to grain growers. Other Asian countries are worse offenders. In Indonesia, the most problematic forms of subsidies account for nearly all of

the government's agricultural spending. But given China's size, its interventions and the mismanagement of its food reserves are likely to have more far-reaching consequences for global markets [18].

By 2015, the drive for food self-sufficiency had come at a growing cost. During 2010-15, as farm wages soared, sugar-cane growers in southern China looked across the border to Vietnam for help. They hired (illegal migrant) Vietnamese workers—nearly a quarter cheaper than Chinese ones—to tend their fields, especially during the winter harvest. For sugar-cane growers, the effect was akin to Mexican workers suddenly disappearing from Californian fruit farms. To encourage loss-making farmers to go on planting sugar cane, officials in Beijing were considering a system of direct subsidies. Costs were rising, crop yields stagnated and the government provided ever more support to keep its farms afloat [19].

Since a largely man-made famine that started in the late 1950s, in which tens of millions died, China has defied the odds by feeding its people almost entirely on its own. It provided for a fifth of the world's population with less than a tenth of its arable land. As middle-class appetites grow, China is past the point of being able to rely on its own farms (see chart, tonnes, consumption and production). In 2011 it became the world's largest importer of agricultural products, powered by its demand for soybeans, a feedstock for pigs [19].

But China's reserves were believed to be unnecessarily big (exact figures are a state secret). Its corn stockpile, for example, was estimated to cover seven months of consumption; a level of three months is normally seen as safe [19].

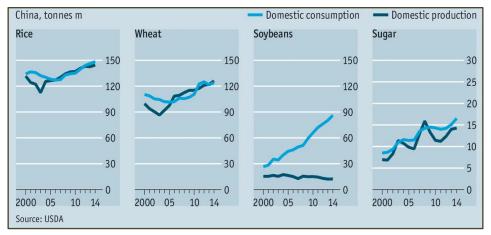
While the government's grain chief called the huge reserves "a cheerful burden", reports revealing corruption

countries do the same, building up reserves to stabilise food prices and as insurance in case of drought or blight.

While the government's grain chief called the huge reserves "a cheerful burden", reports revealing corruption in the system undermined that view. Officials in the northeast had bought low-quality grain at discounted prices, reporting that they had paid the higher state-set price for good grain. They pocketed the difference, stuffing the inferior product into the reserves. Such fiddling was thought to be common [19].

Even in the production of sugar, a commodity that is less important to China's food strategy than rice or wheat, dysfunction caused by the state's interference was apparent. Officials called for 85% of annual consumption to be met through domestic production. But Chinese sugar-cane farms are inefficient, producing less than half the yield of those in Brazil, the world's biggest producer. Domestically grown sugar costs more than twice as much as international sugar. After factoring in shipping costs and import tariffs of up to 50%, it is still cheaper to buy from abroad—hence the government's foot-dragging on import approvals, to prevent the local market from being

flooded. Not wanting to stoke unrest in the countryside, it continued to block imports when it felt domestic producers were threatened [19].



Since the earliest days of its rule, the Communist Party has striven for self-sufficiency in grains and extensive self-reliance in commodities from sugar to pork. The second draft of a proposed new law in 2015 on national security specified the state's responsibility for guaranteeing "grain security", a term that Chinese officials often associate with self-sufficiency. Enabling China to grow enough to feed itself was a strategic goal for Mao (notwithstanding the famine he caused). For much of his rule, the Soviet Union and the US were enemies; he had little faith in global markets. Some Chinese officials think in much the same way today [19].

Maintaining self-reliance is expensive. China spent \$165 bn on support for farmers in 2012, twice as much as five years earlier and a third more than the EU, according to the OECD. It also creates inefficiency. State-set minimum purchase prices for rice, wheat and corn were well above global levels. This boosted production, but it also deterred farmers from diversifying into cash crops that would make better use of land resources. The state's intervention resulted in thirsty crops such as wheat and corn being widely grown on land where water is scarce. Chemicals used to boost their production polluted water supplies. Yield growth slowed since the 1990s and output plateaued more recently, but costs continue to rise—not least of labour, as the young migrate to cities [19].

In years when China's farms produce a surplus of staple

crops, the state bought the excess for its reserves. Many

l<mark>s</mark> nued

Subsidy rules and commitments on exports

Almost all countries have incentive schemes. These schemes make it possible for exporting enterprises to claim exemption from, or drawback of, customs duties paid on inputs used in the manufacture of export products and the reimbursement of indirect taxes borne by such products.

Import protection generally shelters the least productive industries and therefore the ones least likely to export. The argument for protecting or subsidising "infant industries" until they have become strong enough to compete abroad is complicated. Sometimes it has worked: defence spending, for example, was critical to the early development of computers, semiconductors and the internet. But how can it be made to fit in with world trade rules? New findings on the nature of exporting reveal a potentially productive role for government [20].

It starts with the insight that exporting is a bit like films: failures far outnumber successes, but the successes are often spectacular. Marc Melitz of Harvard University notes that making just one foreign sale entails big fixed costs: finding a buyer, setting up distribution and learning to deal with regulations that might be tilted in favour of local companies. Many companies that export once never do so again. But those that do so regularly often grow at a remarkable speed. Eventually, exports come to be

dominated by firms and products that survive this winnowing process [20].

This suggests that the right role for government is not to shower money on a handful of putative winners but to take a portfolio approach: finding companies on the margin of exporting and helping as many as possible overcome the fixed costs of entry. Eventually some should become big, productive exporters. Consular services that guide companies through foreign markets are one form of support; trade finance is another, particularly since the seizure in financial markets impaired private trade financing. The Export-Import Bank has authorised record volumes of trade credit, but Fred Hochberg, its president, said the US spent less on such efforts than China or Canada do, even though its economy is larger [20].

Further trade liberalisation would encourage firms to export by offering certainty of continued market access. A similar approach should be applied to innovation. One study found that federal energy-research spending became more productive when it switched from large-scale demonstration projects to lots of smaller-scale technologies. Many failed, but the handful that succeeded, such as advanced refrigerator and freezer compressors, generated outsized returns [20].

One means of facilitating exports is the creation of export credit agencies, which started early in the last century. Britain's, established in 1919, was part of an effort to improve its balance of payments and thus return to the gold standard. The US Export-Import (ExIm) Bank was originally conceived as an instrument of foreign policy, to provide leverage over the Soviet Union and support for Cuba. For most of its 80 years, Ex-Im laboured in obscurity, providing loans, loan guarantees and credit insurance to foreign buyers of US products from jumbo jets to food. In the early 2010s, it was in the spotlight being declared to be the embodiment of corporate welfare [21].

The global financial crisis gave such banks a new lease of life. When banks pulled back from trade finance after Lehman Brothers collapsed in 2008, governments prodded their export agencies to fill the gap to prevent a bigger fall in trade volumes. Official export credit extended by the G7 alone soared from \$35 bn in 2007 to \$64 bn in 2009, and remained around those levels since (see chart, export credit values). Subsidised loans for exports have long been recognised as a form of mercantilism, which is why rich countries struck a gentlemen's agreement in 1978 to curb them. Signatories to the "OECD arrangement" agree to maximum loan maturities, commercially-based interest rates and minimum risk premiums for insurance. When one signatory strikes a financing deal, it notifies the others, giving them the opportunity to match the terms [21].

Export credit volumes, \$bn United States G7 (excl. US) China Brazil, India, Russia 60 50 40 30 20 10 2007 08 09 10 11 12 13 Source: Export-Import Bank of the United States *China data not available

Given these safeguards, many advocates say official export credit is not really a subsidy at all but simply compensation for a market failure. Banks are reluctant to provide long-term export financing, to lend to countries with shaky political or legal regimes, or to small businesses, even more so since new capital standards have made such loans costlier. Export-credit agencies simply fill an unmet need—and their profits prove it [21].

These arguments are suspect. The scarcity of private financing for certain exports reflects genuine risks that taxpayers are forced to assume. The profit earned by lenders may simply reflect the advantages that come with being part of the government. The Congressional Budget Office reckons that if Ex-Im's future revenue were discounted using the interest rate paid by the Treasury (the bank's main source of funding), it would make a profit of \$14 bn over the next decade. But discounting at market rates would turn that into a loss of \$2 bn. This is far less than the implicit cost of federal student and mortgage loan guarantees. But it does not suggest Ex-Im has found lucrative untapped opportunities [21].

Even if export credit is a subsidy, advocates say it is unavoidable. Any high-minded country that refuses to subsidise exports simply surrenders sales, jobs and income to countries with no such qualms. If ExIm stopped financing sales of Boeing aircraft, the argument runs, either Airbus would grab market share, or Boeing would move production to another country that did finance those sales. This line was trotted out as a growing share of export finance took place outside the OECD arrangement. Two factors were at work. First, many OECD members use instruments not covered by the arrangement, such as "untied" development aid that implicitly, but not explicitly, pays for the donor country's exports, as is common with Japan's lending [21].

The second factor is the surge in lending by countries outside the OECD, above all China. ExIm reckons that China's official export credit last year amounted to \$45.5 billion. Adding in untied aid, project finance and other surreptitious forms of export credit boosts the total to \$111 bn, more than a third of the global total. China regularly offers easier terms than the OECD arrangement would allow. Other countries feel obliged to match them, as ExIm Bank did in 2012 for a Pakistani purchase of locomotives [21].

Ordinarily, export subsidies are a bad bet even if used to match another country's handouts. The resources used to provide the support must either come from distortionary taxes or borrowing, which in normal times would raise interest rates and crowd out private investment. Industries receiving the boost would also absorb capital and labour that might be more productively used elsewhere. Unless foreign subsidies create some market failure (by

threatening to destabilise an industrial cluster, for instance) the least harmful course of action may be to accept the foreign government's largesse. At present, with the world awash in savings and interest rates stuck near zero, the case against subsidies is weaker. Subsidising exports may boost demand for domestic production, leaving the country better off—unless, of course, every country does the same, in which case no one gets an advantage [21].

The WTO discourages protectionism by permitting a

country hurt by another's subsidies to raise tariffs in retaliation. But this is of limited use with export credits

because the victim is neither the importer nor the exporter, but a third country whose exports are artificially suppressed. That country would accomplish nothing by raising tariffs. The world would be better off without subsidised export credits. Failing that, the best solution would be for the OECD arrangement to cover more types of lending and more countries (OECD membership is not required to be a party to the agreement) [21].

Grey areas: export credit and industrial policies

In 2012 Fred Hochberg, head of the US ExIm Bank, joined the chief of Westinghouse on a sales trip in the Czech Republic. A Czech official, he recalls, told him they would not even consider Westinghouse's bid to expand a nuclear power plant without finance from his bank. Russia's state-owned nuclear-energy company, Rosatom, had already offered to fund half the project. Mr Hochberg promised to do the same if Westinghouse, a US unit of Japan's Toshiba, won the bid [22].

"It's time to drop the fantasy that a purely free market exists in the world of global trade," Mr Hochberg told an US audience shortly after returning from Prague. "In the real world our private enterprises are pitted against an array of competitors that are often governmentowned, government-protected, government-subsidised, government-sponsored or all of the above." Russia was particularly active, pledging \$38 bn to finance Rosatom's global ambitions [22].

The rival loans from the US and Russia to win the Czech Republic's business do not fit the usual definition of protectionism. Less overt protectionism has crept back in often to avoid running afoul of WTO rules. The WTO concentrates on measures designed to keep out imports (e.g., tariffs and quotas). Global Trade Alert (GTA), a monitoring service operated by the London-based Centre for Economic Policy Research, defines protectionism more broadly as anything that hurts another country's commercial interests. It thus includes government bailouts of domestic companies, wage subsidies, export and VAT rebates, export credits and financing from state-owned banks. For example, it classifies France's loan guarantee to the financing arm of PSA Peugeot Citroën, a carmaker, as protectionist because, by helping sales of the company's cars, it hurts their competitors' sales. It reckons that at least 400 such "beggar-thy-neighbour" policies have been put in place each year since 2009, and that the trend is on the rise [22].

GTA's Simon Evenett, who is also a business professor at Switzerland's University of St. Gallen, thinks the WTO undercounts protectionist activity, both because of its narrow definition and because many countries do not complain about covert protectionism because they are guilty of it themselves: "The reaction of many trading partners to illegal subsidies is to have subsidies of their own" [22].

GTA's data start only in 2009, making it hard to prove that such protectionism is on the rise, and some experts are sceptical of Mr Evenett's alarmist take. Researchers at the European Central Bank point out that a small number of countries, accounting for only 13% of G20 imports—Argentina, Brazil, India, Indonesia, Russia, South Africa and Turkey—were responsible for 60% of the measures recorded by GTA since 2009. But GTA's data do make it clear that countries have found ways other than traditional protectionism to help domestic industry, keep out imports and boost exports, often under the guise of industrial policy [22].

Brazil has perfected the art. In 2012, looking for a way to reduce car imports, it introduced a new programme to encourage innovation, Inovar-Auto. Designed to stay within WTO rules, this required Brazilian car manufacturers (all foreign-owned) to invest in local innovation and engineering and to meet certain fuel-efficiency standards by 2017, or else face higher excise taxes and import tariffs on domestic sales. This has boosted domestic investment in engineering and fuel-saving technology [22].

Brazil has also used state-controlled companies and banks to encourage domestic innovation and industry. Over the past decade it has required Petrobras, the state-controlled oil company, to meet ever tougher domestic-content requirements. BNDES, the stateowned development bank, expanded its lending and equity investment since 2007 by 140%. Recepta, a biotech company, received a grant, a low-interest loan and, a direct equity investment by BNDES worth about \$15m. José Fernando Perez, who founded Recepta in 2006, does not like the Brazilian government's propensity to meddle in markets, but he makes an exception for innovation policy, noting that Australia, Britain and the US all subsidise basic biotech research. "I could not have survived if I'd paid commercial interest rates." Even so, he complains about the thickets of red tape that make it hard for his company to develop and test its new drug [22].

It is no surprise that the BRIC countries figure prominently in GTA's record of covert protectionism. Thanks to their embrace of state capitalism, the line between industrial policy and export subsidy is blurred or non-existent. China has long used compulsory joint ventures, technology transfer and access to cheap land and loans from state-owned banks to boost companies in strategic sectors. In the mid-2000s it invited foreign manufacturers, including Germany's Siemens and Japan's Kawasaki, to supply locomotives for its high-speed rail network. Later it switched to Chinese companies, which now compete with Siemens and Kawasaki in foreign markets [22].

A similar story unfolded in wind power. After 2000 foreign companies such as Spain's Gamesa had a significant share of China's market for wind-power turbines, but now Chinese companies, many using skills acquired as partners or subcontractors to Western suppliers, along with subsidised land and credit, dominate the Chinese market and compete fiercely with those original Western suppliers [22].

For decades rich countries have financed exports within guidelines laid out by the OECD, but after the global financial crisis much more business has been conducted outside those guidelines. They do not cover non-OECD countries such as Russia, Brazil and, of greatest concern to the rich world, China, which has used export finance to turn its construction-equipment manufacturers into world leaders. But OECD countries, too, have found ways to offer loans that are not covered by the guidelines, such as floating-rate loans. The ExIm bank reckons that in 2012 export credit regulated by the OECD guidelines amounted to \$120 billion, unregulated credit by OECD countries to \$110 billion and lending by Russia, Brazil, India and China to \$70 billion [22].

The US has been no slouch itself. The ExIm bank made new loans of \$31 billion in 2012, up from \$8 billion in 2007, and has been focusing on key industries: oil and gas; mining and agriculture equipment; agribusiness; renewable energy; medical technology; construction; aircraft; and power generation [22].

Although export promotion and industrial policy are less likely to trigger retaliatory action and trade wars than import suppression, that does not make these subtler methods less distortionary or damaging, says GTA's Mr Evenett. If country A's exports to country B benefit from generous export credit, country B can complain. But the real damage is being done to the exports of other countries that are being hit indirectly [22].

And just like import tariffs, export subsidies cause many distortions. Delta Air Lines, for example, has complained it was hurt by ExIm Bank's financing of the purchase of Boeing jets by Air India, which competes with Delta on certain routes. And should a loan go bad, taxpayers would have to foot the bill [22].

Industrial policy also often has unexpected consequences. In 2010 India required centralgovernment solar-power projects that used crystalline modules and, later, cells to source them locally. Since India has a limited capacity for producing such technology, many developers imported American-made thin-film transistor technology instead, taking advantage of low-interest loans from ExIm bank [22].

Brazil's industrial policy, too, is riddled with problems. Buy-local requirements hampered Petrobras's ability to exploit new deep-sea oil deposits because the country's capacity for producing oilfield equipment was limited. Idiosyncratic fuel standards mean the new engines spurred by Inovar-Auto restricted export potential. Brazilian businesses appreciate the help they get from the government but would prefer more growth-friendly policies on taxes, investment and pay [22].

Hidden protectionism and industrial policy may boost specific industries or exports, but that does a country no good if other policies stifle private enterprise and cause underinvestment in human and physical capital. Brazil and India have been held back because their governments funnelled state resources to preferred sectors and constituencies instead of boosting their economies' underlying potential, slowing down their growth [22].

In China, covert protectionism helped domestic manufacturers achieve formidable market share at home and abroad, but excessive lending by state-owned banks to state-owned enterprises and local government caused investment and property bubbles [22].

Another means of promoting exports that is popular with politicians is the creation of free-trade zones, or special economic zones (SEZs). SEZs are all the rage among governments hoping to pep up their trade and investment numbers. "Any country that didn't have [an SEZ] in 2005 either does now or seems to be planning one," says Thomas Farole of the World Bank in 2015 [23].

Studying history may give eager trade ministers pause. SEZs—enclaves in which exporters and other investors receive tax, tariff and regulatory incentives—create distortions within economies. Other costs include required infrastructure investment and forgone tax revenues. The intent is for these costs to be outweighed by the boost to jobs and trade. In reality, many SEZs fail. Performance data are elusive because the effects of zones are hard to disentangle from other economic forces. Anecdotal evidence suggests they fall into three broad categories: (1) a few runaway successes, (2) a larger number that come out marginally positive in cost-benefit assessments, and (3) a long tail of failed zones that either never got going, were poorly run, or where investors gladly took tax breaks

without producing substantial employment or export earnings [23].

SEZs have a long history: the first free-trade zones were in ancient Phoenicia. The first modern one was set up at Shannon airport in Ireland in 1959, but the idea took off in the 1980s after China embraced them. There are now more than 4,000 SEZs (see chart, number of SEZs). A study conducted in 2008 estimated that 68m people worked in them. They come in many forms, from basic "export processing zones" to "charter cities", urban zones that set their own regulations in all sorts of areas that affect business [23]



The biggest success story is China, whose decision in 1980 to create a zone in Shenzhen transformed the city into an export powerhouse. Dozens of SEZs have since popped up across the country. In March 2015, Xi Jinping, the president, urged a faster pace of roll-outs. Other successes include the United Arab Emirates, South Korea and Malaysia. The Philippines won praise for its "PEZA" zones, which offer a streamlined permit process for foreign investors, says Shang-Jin Wei of the Asian Development Bank. Most economists agree that SEZs catalysed liberalisation in China, which used them to test reforms that were seen as too hard to unveil nationwide. In the Dominican Republic they helped create a sizeable manufacturing sector in an economy previously reliant on agriculture [23].

The overall impact of SEZs on trade is poorly understood. A paper by economists at Paris-Dauphine University (2014) found that, for a given level of tariff protection, SEZs increase exports for the countries they are in and for other countries that provide intermediate goods or components. This helps explain why the WTO generally tolerates SEZs, even though many breach its subsidy rules. However, the paper also concluded that zones sometimes give countries an excuse to retain protectionist barriers around the rest of the economy [23].

Other problems pop up: bureaucracy can be excessive or the bureaucrats underfunded (or both); and too little spent on railways, roads and ports to link the zone to the rest of the world. Many African SEZs struggle for such reasons. One in Senegal flopped due to excessive bureaucracy, high electricity costs and its distance from a good port [23].

Developers have withdrawn from 61 of the 139 approved SEZs in the Indian state of Maharashtra because of capricious policymaking, a murky screening process and concern over economic prospects. One survey found that firms had to deal with 15 different agencies to do business in an Indian zone. Violent protests by locals over land acquisition for zones have deterred investors [23].

Moreover, governments sometimes embrace SEZs for the wrong reason: to win praise for reform (and votes) without having to risk full liberalisation. Partial liberalisation can

also be a way to preserve some of the rents earned elsewhere by shielding businesses from competition.

Some zones are vehicles for corruption or money laundering. In 2005 some 60% of firms in Indian SEZs reported having to make "irregular" payments to zone authorities. Ukraine's prime minister opposed SEZs because of corruption. SEZs in Nigeria were resisted by the customs agency, which did not want to lose its clout. By inflating export values, SEZs can launder money [23].

The SEZ concept appears to have natural limits, too. What works in manufacturing may not work in other sectors. The Shanghai Free Trade Zone, launched in 2013 and focused on finance, has disappointed. Economists fret that it is impossible to tinker within the zone with China's capital controls, for instance, without the effects spilling over to the rest of the economy. Perhaps as a result, the authorities have been cautious: in a recent survey, three-quarters of US firms in Shanghai said the zone offered them no benefits [23].

This has not stopped China approving plans for more financial SEZs. The government is also promoting zones abroad: it is helping six African countries to set some up. Although China's are state-run, more SEZs are likely to be privately owned and operated. The Philippines already has more than ten times as many private zones as public ones. This shift may go further, if privately run charter cities and other so-called "special governance zones" gain traction. The idea is to create enclaves that write their own rules in all business matters, from labour regulation to anticorruption codes—"to look at laws as services that companies demand", says Lotta Moberg of George Mason University. Such ventures will provide competition more effectively than zones focused on fiscal incentives [23].

4. INCOMPATIBILITY/INCOHERENCE BETWEEN WTO RULES AND ECONOMIC THEORY

Overview of the OECD Indicators of Agricultural Support

Why measure agricultural support?

The OECD indicators were developed to monitor and evaluate developments in agricultural policy, to establish a common base for policy dialogue among countries, and to provide economic data to assess the effectiveness and efficiency of policies. The indicators were mandated by OECD Ministers in 1987 and have since been calculated for OECD and some non-OECD countries, and are widely referred to in the public domain [24].

The objectives and priorities of agricultural policies in OECD countries encompassed over time a wide range of issues – from overcoming food shortages or surpluses in the post-war period to securing food safety, environmental quality and preservation of rural livelihoods at present. Policy instruments have been equally varied, reflecting changes in domestic political and economic settings and, progressively, developments in the international economic arena. Despite this diversity, policy measures applied in a country within a certain period of time can be brought together and expressed in one or several simple numbers – called support indicators – which are comparable across time and between countries. The utility of doing this is three-fold [24].

First, support indicators can be used to *monitor and* evaluate developments of agricultural policies.⁵ This

⁵ The term "policy evaluation" is understood to be the analysis of levels and composition of agricultural support with respect to the implementation of the policy reform agenda. The term is not used

includes the extent of policy reform achieved by countries, both over time and through specific reform efforts (*e.g.* the US Farm Bills and various CAP reforms), as well as progress towards achieving the commitment agreed to at the 1982 OECD Ministerial Council of reforming agricultural policies. This commitment stated that "agricultural trade should be more fully integrated within the open and multilateral trading system", and it called for OECD countries to pursue "a gradual reduction in protection and a liberalisation of trade, in which a balance should be maintained as between countries and commodities." Ministers also requested the OECD to develop a method to measure the level of protection to monitor and evaluate progress [24].

Closely related to this, the indicators establish a *common base for policy dialogue* by using a consistent and comparable method to evaluate the nature and incidence of agricultural policies. While the indicators were calculated initially for OECD countries, the analysis currently includes 43 countries (27 EU members treated as a single entity), with estimates covering the period from 1986 to the present. The international comparability of the indicators and wide country coverage makes the indicators a useful tool for policy dialogue not only amongst OECD countries, but also with non-OECD countries, intergovernmental organisations (WTO, World Bank, IMF and FAO), farming and non-government organisations, as well as research institutions [24].

Finally, the indicator database is used in further research on policy impacts. The data serve as an *input into modelling* to assess the effectiveness and efficiency of policies in delivering the outcomes for which they were designed and to understand their effects on production, trade, income, the environment, etc. While the indicators cannot by themselves quantify these impacts, the economic information upon which they are based is an important building block for further analysis [24].

Overview of support indicators: key terms, definitions and distinctions

- "Support" is understood as gross transfers to agriculture from consumers and taxpayers, arising from governments' policies that support agriculture.
- In addition to budgetary expenditures, support includes other estimated transfers, which do not require actual monetary disbursements (e.g., credit concessions).
- The indicators reflect the provision of support, or the level of effort made by governments, as implied by their agricultural policies. As such, they are not intended to and do not measure policy impacts on production, farm incomes, consumption, trade or environment.
- The indicators represent different ways to analyse agricultural policy transfers and measure their levels in relation to various key economic variables. Together they provide a comprehensive picture of agricultural support.
- The indicators can be distinguished according to the recipient of the transfer, the unit of measurement in which they are expressed, and the type of aggregation [24].

Agricultural policies may provide direct payments to farmers. They may maintain domestic agricultural prices above those at the country's border, or grant tax and credit concessions to farmers. Support is not only comprised of

as the evaluation of the effectiveness or efficiency of policies, except in the cases where the foucs is specifically on that issue.

budgetary payments that appear in government accounts, but also includes support of market prices, as well as other concessions that do not necessarily imply actual budgetary expenditure, such as tax concessions. The common element to all these policies is that they generate transfers to agriculture [24].

The concept of "transfer" presumes both a source of the transfer and the existence of a recipient. In the present methodology, agriculture is generally regarded as a supported sector and the main recipient of policy transfers. Consumers of agricultural commodities and taxpayers represent the two sources of transfers, *i.e.* the economic groups bearing the cost of agricultural support. The term "agriculture" designates primary agricultural producers as an economic group. Agricultural producers are viewed from two perspectives — as individual entrepreneurs, and collectively. These distinctions underlie the key dimensions in which agricultural support is measured and the basic structure of the indicators [24].

The terms "support" and "policy transfers" are broadly synonymous, but may be used in different contexts. The term "support" is predominantly used to mean a "policy measure" (that generates a policy transfer) and usually appears when identifying, scoping and classifying the relevant policies. The term "policy transfer" is used mainly with respect to calculations, *i.e.* the process of obtaining numerical expressions of policies [24].

More fundamental for understanding of the indicators, however, is the distinction between the notions of "provision of support" and the "impact of support" (i.e. impacts of policy transfers). The indicators are the various measures of gross policy transfers. As such, they reflect the *provision* of support, or the level of effort made by governments, as implied by their agricultural policies. The indicators do not account for the losses of that effort within the economic system, as experienced by the recipients of support. In fact, a proportion of the transfers will not end up as extra producer net income because support induces higher prices for agricultural inputs and factors, as well as generating deadweight loss of economic welfare [24].

Moreover, the actual impact of policies on its recipients will depend on, among other things, the basis upon which support is provided (e.g. whether it is provided per tonne of output, per land unit, per farm, etc.), the level of support, and the responsiveness of farmers to changes in support. The indicators, therefore, are not intended to and do not measure the impact of policy effort on farm production, farm incomes, trade or environment. This explanation of the indicators as representing measures of policy effort is crucial for understanding them properly [24].

The support indicators, which are introduced below, are different ways to analyse agricultural policy transfers and measure their levels in relation to various key economic variables. The names, abbreviations and definitions of the indicators are listed in the box below. No single indicator can capture all aspects of agricultural support. Each serves a purpose, highlighting a dimension of the support framework. The indicators are interlinked and mutually reinforcing. When analysed together, they provide a comprehensive picture of the level and composition of support [24].

Three distinctions can be made between the indicators. The first relates to the *intended recipient* of the transfer – producers individually, producers collectively, or consumers, although agriculture is always understood to be the economic sector supported by the policies [24].

A second distinction can be made in relation to the unit of measurement. An indicators is expressed in monetary terms, as *percentages* or as or *ratios*. An advantage of monetary indicators is that they can be used to analyse the composition of support, e.g. to calculate the shares of PSE or GSSE by policy category, or the shares of TSE according to whether the transfers come from consumers or taxpayers. However, the monetary indicators are influenced by the size and structure of the country's agricultural sector, as well as the country's rate of inflation. Consequently, there are difficulties in using them to compare support levels between countries, to evaluate changes over time, or to assess the level of support provided within a country to different commodities. In contrast, percentage indicators and ratios, which relate policy transfers to some other monetary base, e.g. the value of agricultural production, allow such comparisons to be made [24].

Finally, the indicators can be distinguished according to the *type of aggregation* at which they can be derived — across commodities or geographically. While all the indicators can be calculated at the national and multicountry level, some can also be calculated for individual commodities or for groups of commodities [24].

Names and definitions of the OECD indicators of agricultural support

1. Indicators of support to producers

Producer Support Estimate (PSE): the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm-gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production or income. The PSE in percentage terms (%PSE) is the PSE as a share of gross farm receipts (inclusive of support). The PSE is the most widely reported support measure. (Other support measures are not provided in this summary.)

2. Indicators of support for general services in agriculture

General Services Support Estimate: the annual monetary value of gross transfers to general services provided to agricultural producers collectively (such as research, development, training, inspection, marketing and promotion), arising from policy measures that support agriculture regardless of their nature, objectives and impacts on farm production, income, or consumption. The GSSE does not include any transfers to individual producers. It is also measured as a share of GDP.

3. Indicators of support to consumers

Consumer Support Estimate (CSE): the annual monetary value of gross transfers from (to) consumers of agricultural commodities, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on consumption of farm products. It is also measured as a share of consumption expenditure (measured at farm gate) net of taxpayer transfers to consumers. (There are other measures of support to consumers that are not provided in this summary.)

4. Indicators of total support to agriculture

Total Support Estimate (TSE): the annual monetary value of all gross transfers from taxpayers and

consumers arising from policy measures that support agriculture, net of associated budgetary receipts, regardless of their objectives and impacts on farm production and income, or consumption of farm products. TSE is also measured as a share of GDP [24].

2.3. Basic principles of measuring support

Several key principles determine the scope and policy measures to be considered in the estimation of agricultural support and the method for measuring support, such as:

- A policy measure is included if it generates transfers to agricultural producers, regardless of the nature, objectives or impacts of the policy measure:
- Transfers are measured in gross terms, taking no account of adjustments which producers may make to receive the support, e.g., to meet compliance conditions;
- Transfers to individual producers are measured at the farm gate level [24].

A number of principles, or general rules, guide the measurement of agricultural support. Principles 1 to 3 determine the scope of policy measures to be considered in estimating agricultural support and provide criteria for identifying agricultural policies in a complex mix of government actions. Principles 4 and 6 help to define the method for measuring support and are important for interpreting the indicators [24].

Principle 1: generation of transfers to agricultural producers as a key criterion for inclusion of policy in the measurement of support. Policy measures generate explicit or implicit transfers to supported individuals or groups. A policy measure is considered for measurement if agricultural producers, individually or collectively, are the only, or the principal, intended recipients of economic transfers generated by it. This is sufficient criterion for inclusion of a policy measure in the estimation of agricultural support [24].

Principle 2: there is no consideration of the nature, objectives or economic impacts of a policy measure beyond an —accountingl for transfers. This principle complements principle 1, in that the stated objectives, or perceived economic impacts of a policy measure, are not used as alternative or additional criteria to determine the inclusion or exclusion of a policy measure in the estimation of agricultural support [24].

Principle 3: general policy measures available throughout the entire economy are not considered in the estimation of agricultural support, even if such measures create policy transfers to/from the agriculture [i.e., only partial equilibrium analysis is considered]. Thus, a situation of zero support to agriculture would occur when there are only general economy-wide policies in place with no policies specifically altering the economic conditions for agriculture [24].

Principle 4: transfers generated by agricultural policies are measured in gross terms. Policy transfers can be defined in gross or net terms, i.e. as revenue (gross receipts) or income (revenue less costs) generated by a policy measure. The phrase gross transfers in the definitions emphasises that no adjustment is made in the indicators for costs incurred by producers in order to receive the support, e.g. costs to meet compliance

conditions attached to certain payments, or tax clawbacks [24].

Principle 5: policy transfers to individual producers are measured at the farm gate level, which follows from the objective to measure support only to primary producers of agricultural commodities. Consequently, the word "consumer" in the definitions and methodology is understood as a first-stage buyer of agricultural commodities [24].

Principle 6: policy measures supporting individual producers are classified according to implementation criteria, such as: (i) the basis upon which support is provided (a unit of output, an animal head, a land unit, etc.); (ii) whether support is based on current or non-current production parameters; and (iii) whether production is required to receive support or not; and other criteria. These policy characteristics affect producer behaviour, and distinguishing policies according to implementation criteria enables further analysis of policy impacts on, for example, production, trade, income, and the environment [24].

Annex 2.1. A Short History of the Indicators

The widespread policy goal from the late 1940s to produce more food led to increasing concern about the effects of agricultural policies on trade relations and on the cost of policies. Combined with rapid technical progress and structural changes, trade barriers and domestic production support measures led to surpluses of farm goods, which were stocked or exported with additional subsidies. World prices for temperate-zone commodities were driven down. The costs of stock-holding and export subsidies placed heavy burdens on government budgets, consumers in countries with protected markets faced higher food bills, and competitive producers in other countries were penalised by restrictions on access to those markets. By the beginning of the 1980s, a number of OECD countries realised that action was urgently needed [24].

At the 1982 OECD Ministerial Council (consisting of Ministers of Economics, Trade and Foreign Affairs, plus a few Agriculture Ministers), it was agreed "that agricultural trade should be more fully integrated within the open and multilateral trading system... (and) that the desirable adjustments in domestic policies can best take place if such moves are planned and co-ordinated within a concerted multilateral approach aimed at achieving a gradual reduction in protection and a liberalisation of trade, in which a balance should be maintained as between countries and commodities." Ministers also decided that the Secretariat should "study the various possible ways in which the above aims could be achieved as a contribution to progress in strengthening co-operation on agricultural trade issues and as a contribution to the development of practical multilateral and other solutions" [24].

An integral part of this investigation was to develop an appropriate basis for measuring agricultural subsidies. After considering the options available, the Secretariat decided to use the Producer Subsidy Equivalent (PSE), initially defined as the payment that would be required to compensate farmers for the loss of income resulting from the removal of a given policy measure (OECD, 1987). While the PSE was at first used for modelling the effects on world commodity prices of a small reduction in agricultural subsidies, it was also recognised as a very useful tool in its own right to establish a consistent and comparative method to evaluate agricultural policies between countries [24].

measure (market price support element of the PSE) and any subsidies on consumption."

⁶ The consumer subsidy equivalent (CSE) was defined as the "implicit tax on consumption resulting from a given policy

The notion of a "subsidy equivalent" derives from the economic theory of protection developed in the 1960s to evaluate the effects of tariffs (Corden, 1971). According to this theory, the *producer subsidy equivalent of a policy measure*, whether an import tariff, export subsidy, payment per tonne or per hectare, etc., is the payment per unit of output that a government would have to pay producers to generate the same impact on production as that policy measure. (Likewise, the consumer tax equivalent is the per unit tax that a government would have to impose to generate the same impact on consumption as that policy measure.) In the early 1970s, Tim Josling had applied this concept to the empirical measurement of agricultural subsidies in work for the FAO, introducing the term PSE (Josling, 1973 and Josling, 1975) [24].

In 1987, a major OECD study entitled *National Policies* and *Agricultural Trade* offered an in-depth analysis of the agricultural policies of individual OECD countries based largely on the PSE and related indicators. This study recognised the linkages between domestic and trade policies and concluded that in order to improve the trading environment actions were necessary on both trade barriers and domestic policies [24].

It was clear from the start that the "income compensation" definition did not match what was actually being measured by the OECD PSE. While policy measures providing the same amount of *monetary* transfers to producers have the same *revenue* subsidy equivalent, they may have different production and income subsidy equivalents which depend on the way the measures are implemented (per unit of output or per hectare of land producing the same output, for example). One of the first critiques in this regard noted, *inter alia*, that the PSE was a measurement of revenue transfer (Peters, 1988) [24].

As a result, the PSE was redefined in 1990 as the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm-gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impact on farm production or income [24].

Four major refinements were made in 1999:

- The PSE acronym was changed from meaning "Producer Subsidy Equivalent" to "Producer Support Estimate". It was recognised that: (a) transfers associated with a wide range of diverse policies have different "subsidy equivalents; and (b) that some of the transfers were given for the provision of services and positive externalities rather than to subsidise the production of agricultural commodities. The more neutral term "support" acknowledges that a monetary transfer is involved whatever the policy objective.
- Changes were made to the classification of policies within the PSE. Table 2 shows how these evolved. This was required because of the growing scope of support policies introduced since the mid-1980s. Previously, there were five PSE categories with policies classified according to the *type* of support measure. The 1999 refinements introduced seven types of support measures with policies classified according to how they were *implemented*.
- A closely related change involved the establishment of a separate indicator to measure support provided to producers collectively, the General Services Support Estimate (GSSE). Support for "General Services" had been previously included in the PSE. This was separated from the calculation of the PSE, which now measures only support received by producers individually [24].

Table 3 provides a schematic on the evolution of the measurement of agricultural support.

Consequently, the indicator and method for measuring the total cost to consumers and taxpayers of agricultural

Table 3. Evolution of produce support equivalent measures		
Initial 1987 categories	1999 Revision	
A. Market price support	A. Market price support	
B. Direct payments	B. Payments based on output	
C. Reduction in input costs	C. Payments based on area	
D. General services	planted/animal numbers	
E. Other	D. Payments based on historical entitlements	
	E. Payments based on input use	
	F. Payments based on input constraints	
	G. Miscellaneous	
2007 Revision		

- A. Support based on commodity output
 - A1. Market price support
 - A2. Payments based on output
- B. Payments based on input use
- C. Payments based on current area, animal numbers, receipts or income, where production is required
- D. Payments based on non-current area, animal numbers, receipts or income, where production is required
- E. Payments based on non-current area, animal numbers, receipts or income, where production is not required
- F. Payments based on non-commodity criteria
- G. Miscellaneous

policies also changed, from the Total Transfers to Total Support Estimate (TSE) [24].

• Finally, a new method for calculating the national (aggregate) PSE was introduced. Previously, this had been calculated by "extrapolating" the average % PSE for a common set of commodities to all agricultural production. A new method was introduced whereby only the average ratio of MPS to gross farm receipts for a set of commodities is extrapolated across to the rest of agricultural production (section 6.1.1), with all transfers from non-MPS policies included specifically within the PSE through classification in the appropriate categories [24].

Further changes were introduced in 2007 to enable the indicators to better capture recent policy developments, *e.g.* the move to —decouplel the provision of support from specific commodity production and —re-couplel the provision of support to other criteria. Three major changes were made:

- Although still based on implementation criteria, the PSE categories were substantially redefined.
- Labels were introduced, with the result that each policy, in addition to being classified into a PSE category, could also have up to six different labels attached to it so as to provide additional detail on implementation criteria; labels serve as shorthand for categories not included in the main presentation. For example, labels give additional information on whether a payment is with or without limit, or whether a payment implies any constraints on input use by the recipient, etc.
- PSEs for individual commodities are no longer calculated. Instead, a country total PSE is divided into Single Commodity Transfers, Group Commodity Transfers, All Commodity Transfers; and Other Transfers to Producers. This change reflects the fact that as a result of policy reform, support in many OECD countries is less tied to an individual commodity. Support is being increasingly provided to groups of commodities or all commodities in general,

or without obliging a recipient to engage in commodity production at all. In this situation the link between some support transfers and individual commodities becomes less apparent. This necessitated an alternative presentation of support transfers with respect to their commodity specificity [24].

5. DOHA ROUND NEGOTIATIONS AND POST- DOHA PROPOSALS FOR DS AND ES

The Committee on Agriculture, WTO, was responsible for synthesizing the positions of members during the Doha development round negotiations. Before the collapse of the round, the modalities for agriculture read as follows [d].

Modalities for Agriculture:

- I. Domestic Support
- A. Overall reduction of trade-distorting domestic support: A Tiered Formula

Base level

- 1. The base level for reductions in Overall Trade-Distorting Domestic Support (hereafter "Base OTDS") shall be the sum of:
 - (a) the Final Bound Total AMS specified in Part IV of a Member's Schedule; plus
 - (b) for developed country Members, 10% of the average total value of agricultural production in the 1995-2000 base period (this being composed of 5% of the average total value of production for product-specific and non-product-specific AMS respectively); plus
 - (c) the higher of average Blue Box payments as notified to the Committee on Agriculture, or 5% of the average total value of agricultural production, in the 1995-2000 base period.
- 2. For developing country Members, item (b) of paragraph 1 above shall be 20% of the average total value of agricultural production in the 1995-2000 or 1995-2004 period as may be selected by the Member concerned. For developing country Members, the base period for the purposes of item (c) of paragraph 1 above shall be 1995-2000 or 1995-2004 as may be selected by the Member concerned.

Tiered reduction formula

- 3. The Base OTDS shall be reduced in accordance with the following tiered formula, where the Base OTDS is:
 - (a) > US\$60 billion (or equivalent in the monetary terms) the reduction shall be 80%;
 - (b) > US\$10 billion and ≤ US\$60 billion (or equivalent in the monetary terms) the reduction shall be 70%;
 - (c) ≤ US\$10 billion (or equivalent) the rate of reduction shall be 55%.
- 4. Developed country Members with high relative levels of Base OTDS in the second tier (i.e. at least 40 per cent of the average total value of agricultural production in the 1995-2000 period) shall undertake an additional effort. The additional reduction to be undertaken shall be equal to one half of the difference between the reduction rates specified in paragraphs 3(a) and 3(b) above.

- 5. For developed country Members, the reductions shall be implemented in six steps over five years.
 - (a) For Members in the first two tiers specified in paragraphs 3(a) and 3(b) above, the Base OTDS shall be reduced by one-third on the first day of implementation. The remaining reductions shall be implemented annually in five equal steps.
 - (b) For Members in the third tier specified in paragraph 3(c) above, the Base OTDS shall be reduced by 25 per cent on the first day of implementation. The remaining reductions shall be implemented annually in five equal steps.

B. Final Bound Total AMS: A Tiered Formula

Tiered reduction formula

- 13. The Final Bound Total AMS shall be reduced in accordance with the following tiered formula, where the Final Bound Total AMS is:
 - (a) > US\$40 billion (or the equivalent in the monetary terms) the reduction shall be 70%;
 - (b) > US\$15 billion and ≤ US\$40 billion (or equivalent) the reduction shall be 60%;
 - (c) ≤ US\$15 billion (or equivalent) the rate of reduction shall be 45%.
- 14. Developed country Members with high relative levels of Final Bound Total AMS (i.e. at least 40 per cent of the average total value of agricultural production during the 1995-2000 period) shall undertake an additional effort in the form of a higher cut than would otherwise be applicable for the relevant tier. Where the Member concerned is in the second tier, the additional reduction to be undertaken shall be equal to the difference between the reduction rates specified in paragraphs 13(a) and 13(b) above. Where the Member concerned is in the bottom tier, the additional reduction to be undertaken shall be one half of the difference between the reduction rates specified in paragraphs 13(b) and 13(c) above.

Implementation period and staging

15. For developed country Members, reductions in Final Bound Total AMS shall be implemented in six steps over five years. For developed country Members in the top two tiers specified in paragraphs 13(a) and 13(b) above, this shall be implemented by means of a 25 per cent reduction on the first day of implementation, followed by reductions in equal annual instalments over five years. For other developed country Members, the reductions shall be implemented in six equal annual instalments over five years, commencing on the first day of implementation.

C. Product-Specific AMS Limits

General

- 21. Product-specific⁷ AMS limits shall be set out in terms of monetary value commitments in Part IV of the Schedule of the Member concerned in accordance with terms and conditions specified in the paragraphs below.
- 22. The product-specific AMS limits specified in the Schedules of all developed country Members other than the United States shall be the average of the product-specific AMS during the Uruguay Round implementation period (1995-2000) as notified to the Committee on

Implementation period and staging

⁷ "Product-specific" commitments have the same meaning as they are used in the Uruguay Round Agreement on Agriculture.

Agriculture. These shall be tabulated by individual product for each Member in an Annex to these modalities.

- 23. For the United States only, the product-specific AMS limits specified in their Schedule shall be the resultant of applying proportionately the average product-specific AMS in the 1995-2004 period to the average product-specific total AMS support for the Uruguay Round implementation period (1995-2000) as notified to the Committee on Agriculture. These shall be tabulated by individual product in the Annex to these modalities referred to in the paragraph above.
- 24. Where a Member has, after the base period specified in paragraphs 22 and 23 above, introduced product-specific AMS support above the *de minimis* level provided for under Article 6.4 of the Uruguay Round Agreement on Agriculture, and it did not have product-specific AMS support above the *de minimis* level during the base period, the product-specific AMS limit specified in the Schedule may be the average amount of such product-specific AMS support for the two most recent years prior to the date of adoption of these modalities, for which notifications to the Committee on Agriculture have been made.
- 25. In cases where the product-specific AMS support for each year during the base period specified in paragraphs 22 and 23 above was below the *de minimis* level provided for under Article 6.4 of the Uruguay Round Agreement on Agriculture and the Member concerned is not in the situation covered by paragraph 24 above, the product-specific AMS limit specified in the Schedule for the product concerned may be that *de minimis* level, expressed in monetary terms. The application of the provisions in this paragraph and paragraphs 21 to 24 shall not require a Member's product specific AMS limit to be lower than the base period *de minimis* level, expressed in monetary terms as set out in this paragraph.
- 26. The scheduled product-specific AMS limits shall be implemented in full on the first day of the implementation period. Where the average notified product-specific AMS in the two most recent years for which notifications are available was higher, the limits shall be implemented in three equal annual instalments, with the starting point for implementation being the lower of the average of those two years or 130 per cent of the scheduled limits.

D. De minimis

Reductions

30. The *de minimis* levels referred to in Article 6.4(a) of the Uruguay Round Agreement on Agriculture for developed country Members (i.e. 5 per cent of a Member's total value of production of a basic agricultural product in the case of product-specific de minimis and 5 per cent of the value of a Member's total agricultural production in the case of non-product-specific de minimis) shall be reduced by no less than 50 per cent effective on the first day of the implementation period. Furthermore, where, in any year of the implementation period, a lower level of *de minimis* support than that resulting from application of that minimum percentage reduction would still be required to ensure that the Annual or Final Bound OTDS commitment for that year is not exceeded, a Member shall undertake such an additional reduction in what would otherwise be its de minimis entitlement.

E. Blue Box

Basic criteria

35. The value of the following domestic support, provided that it is consistent also with the limits as provided for in the paragraphs below, shall be excluded from a Member's

calculation of its Current Total AMS but shall count for purposes of that Member's Blue Box commitments and OTDS:

- (a) Direct payments under production-limiting programmes if:
 - (i) such payments are based on fixed and unchanging areas and yields; or
 - (ii) such payments are made on 85 per cent or less of a fixed and unchanging base level of production; or
 - (iii) livestock payments are made on a fixed and unchanging number of head.

Or

- (b) Direct payments that do not require production if:
 - (i) such payments are based on fixed and unchanging bases and yields; or
 - (ii) livestock payments are made on a fixed and unchanging number of head; and
 - (iii) such payments are made on 85 per cent or less of a fixed and unchanging base level of production.
- 36. Each Member shall specify in its Schedule which of these categories (a) or (b) it has selected for the purposes of establishing all its Blue Box commitments in this Round. Any exception to this universal application would be with the agreement of all Members prior to finalization of Schedules. In no circumstances could both domestic support categories be made available for any particular product or products.
- 37. Any Member that is in a position to move its domestic support from AMS to Blue pursuant to paragraph 43 below, or introduce product-specific Blue Box support pursuant to paragraphs 47 and 50 below subsequent to the conclusion of this negotiation shall have the option to do so on the basis of either criterion above but, once selected and scheduled, this shall be binding.

Additional criteria

(a) Overall Blue Box limit

- 38. The maximum value of support that can, under the above criteria of "Blue Box", be provided under Article 6.5 shall not exceed 2.5 per cent of the average total value of agricultural production in the 1995-2000 base period on the basis of notifications to the Committee on Agriculture where they exist. This limit shall be expressed in monetary terms in Part IV of Members' Schedules and shall apply from the first day of the implementation period.
- 39. In cases where a Member has, consistent with the terms of Article 6.5(a) of the Uruguay Round Agreement on Agriculture, placed in the Blue Box an exceptionally large percentage of its trade-distorting support defined as 40 per cent during the 1995-2000 base period, the limit for that Member shall, instead, be established by application of a percentage reduction in that average base period amount. That percentage reduction shall equal the percentage reduction that the Member concerned is to make in its Final Bound Total AMS. This Blue Box limit shall be expressed in monetary terms and bound in Part IV of that Member's Schedule. An implementation period of no more than 2 years may be provided for any such Member in the event that immediate implementation is unduly burdensome.

III. Export Competition

A. General

160. Nothing in these modalities on export competition can be construed to give any Member the right to provide,

directly or indirectly, export subsidies in excess of the commitments specified in Members' Schedules, or to otherwise detract from the obligations of Article 8 of that Agreement. Furthermore, nothing can be construed to imply any change to the obligations and rights under Article 10.1 or to diminish in any way existing obligations under other provisions of the Uruguay Round Agreement on Agriculture or other WTO Agreements.

161. Nor can anything in these modalities be construed to diminish in any way the existing commitments contained in the Marrakesh Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-developed and Net Food-importing Developing Countries of April 1994 and the Decision on the Implementation-related Issues and Concerns of 14 November 2001 on, inter alia, commitment levels of food aid, provision of food aid by donors, technical and financial assistance in the context of aid programmes to improve agricultural productivity and infrastructure, and financing normal levels of commercial imports of basic foodstuffs. Nor could it be understood to alter the regular review of these decisions by the Ministerial Conference and monitoring by the Committee on Agriculture.

B. Scheduled Export Subsidy Commitments

- 162. Developed country Members shall eliminate their remaining scheduled export subsidy entitlements by the end of 2013. This shall be effected on the basis of:
 - (a) budgetary outlay commitments being reduced by 50 per cent by the end of 2010 in equal annual instalments from the date of entry into force, with the remaining budgetary outlay commitments being reduced to zero in equal annual instalments so that all forms of export subsidies are eliminated by the end of 2013.
 - (b) quantity commitment levels being applied as a standstill from the commencement until the end of the implementation period at the actual average of quantity levels in the 2003-05 base period. Furthermore, throughout the implementation period, there shall be no export subsidies applied either to new markets or to new products.
- 163. Developing country Members shall eliminate their export subsidy entitlements by reducing to zero their scheduled export subsidy budgetary outlay and quantity commitment levels in equal annual instalments by the end of 2016.
- 164. In accordance with the Hong Kong Ministerial Declaration, developing country Members shall, furthermore, continue to benefit from the provisions of Article 9.4 of the Agreement on Agriculture until the end of 2021, i.e. five years after the end-date for elimination of all forms of export subsidies.
- C. Export Credits, Export Credit Guarantees or Insurance Programmes [provided in annex J]

ANNEX J

Definition

1. In addition to complying with all other export subsidy obligations under this Agreement and the other covered Agreements⁸, Members undertake not to provide export credits, export credit guarantees or insurance programmes otherwise than in conformity with this Article. These

⁸ However, the second paragraph of item (k) of Annex I to the Agreement on Subsidies and Countervailing Measures (hereafter the "Illustrative List") shall not be applicable in the case of agricultural products. export credits, export credit guarantees and insurance programmes (hereinafter referred to as "export financing support") shall comprise:

- (a) direct financing support, comprising direct credits/financing, refinancing, and interest rate support;
- (b) risk cover, comprising export credit insurance or reinsurance and export credit guarantees;
- (c) government-to-government credit agreements covering the imports of agricultural products from the creditor country under which some or all of the risk is undertaken by the government of the exporting country; and
- (d) any other form of governmental export credit support, direct or indirect, including deferred invoicing and foreign exchange risk hedging.
- 2. The provisions of this Article shall apply to export financing support provided by or on behalf of the following entities, hereinafter referred to as "export financing entities", whether such entities are established at the national or at the sub-national level:
- (a) government departments, agencies, or statutory bodies:
- (b) any financial institution or entity engaged in export financing in which there is governmental participation by way of equity, provision of funds, loans or underwriting of losses;
- (c) agricultural export state trading enterprises; and
- (d) any bank or other private financial, credit insurance or guarantee institution which acts on behalf of or at the direction of governments or their agencies.

Terms and Conditions

- 3. Export financing support shall be provided in conformity with the terms and conditions set out below.
 - (a) Maximum repayment term for export financing support under this Agreement, this being the period beginning at the starting point of credit⁹ and ending on the contractual date of the final payment, shall be no more than 180 days.
 - (b) Export credit guarantee, insurance and reinsurance programmes, and other risk cover programmes included within sub-paragraphs 1(b) (c) and (d) above shall be self-financing. Where premium rates charged under a programme are inadequate to cover the operating costs and losses of that programme over a previous 4-year rolling period, this shall, in and of itself, be sufficient to determine that the programme is not self-financing. Where these programmes are found to constitute export subsidies within the meaning of item (j) of the Illustrative List, they shall also be deemed to be not self-financing under this Agreement.

Agricultural Exporting State Trading EnterprisesAgricultural exporting state trading enterprises shall comply with the provisions of Annex K.

International Food Aid

International food aid shall comply with Annex L.

Post-Doha trade facilitation versus food security

In 2014 WTO officials had a spring in their step. In December 2013 its 159 members, meeting in Bali, had

9 The "starting point of a credit" shall be no later than the weighted mean date or actual date of the arrival of the goods in the recipient country for a contract under which shipments are made in any consecutive six-month period.

struck a "trade facilitation agreement" (TFA)—a pledge to cut red tape at customs posts around the world. It was the first big win of the Doha round, a 13-year slog to bring down trade barriers. But on 31 July, just before ratification, India withdrew its support, prompting the deal's collapse [26].

Developing countries had the most to gain from the TFA. Despite it being a limited bargain, which does not cut tariffs, it was estimated to boost developing-country GDP by \$523 billion. India, among a handful of countries which receives help from the WTO to boost its trade, would have seen large payoffs. Thus, at first glance its volte-face may have seemed surprising. The deal was negotiated by India's previous, protectionist-minded government, yet the relatively business-friendly administration of Narendra Modi scuppered it. In truth, it was never clear if India's farming policies could be compatible with any WTO deal [26].

Under the WTO's rules, trade-distorting subsidies to farmers in a developing country cannot exceed 10% of the total value of its harvests. But under a new food-security law, India brought in a \$4 billion-a-year scheme to provide cheap food for 800m people; and the minimum support prices the government offered to farmers, which for rice had more than doubled since 2001-02, would continue rising. If these measures breached the 10% limit, India would be open to a WTO challenge. The government insisted it would not sacrifice food security on the altar of a trade deal [26].

Before India's elections, the WTO tried to accommodate its demands with a "peace clause" that would have made the food-security programme immune from challenge for four years. But the new government was unsatisfied with the fudge, worried that 2017 would come and it would have little bargaining power to get a permanent exemption for its food security program [26].

India's hardball tactics would reenforce its protectionist reputation. Of 95 countries tracked by the World Bank in 2013, India's exports-to-GDP ratio was 19th from bottom. Agricultural protection is high. In 2012 the EU, rightly scorned for its own farm policies, spent the equivalent of 0.73% of GDP on agricultural support. India's 1.15 trillion rupees (\$18.8 billion) spending on food subsidies touches 1% of GDP—and has doubled since 2009. Even that is before counting subsidies to farmers for fertilisers, tractor fuel and the like [26].

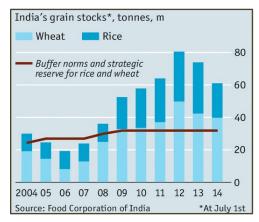
Arvind Subramanian of the Peterson Institute argues that India has been let down by agreements made during the Uruguay round of trade talks that finished in the mid-1990s. At that time, rich countries were allowed to keep many protectionist policies in return for promising to reduce them progressively. India, which was deemed not to subsidise domestic agriculture at the time, was thus left with stricter limits on supporting farmers, even as it lowered its import tariffs [26].

The WTO could help out. The reference prices for commodities that it uses to measure handouts to producers date from 1986-88, which has the effect of exaggerating India's protectionism. Rich countries are loath to update the reference prices, lest it open the floodgates for all sorts of other quibbles [26].

India could do some things to help itself. Three things stood out. First, it could exploit another historical legacy of the Uruguay deal. It has been a more enthusiastic tariff-cutter than that deal required: it is free, for example, to raise the tariffs on vegetables from 30% to more than 100%. A commitment to keeping such tariffs low, or cutting them further, could form part of a deal whereby the

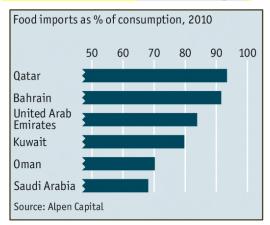
WTO turns a blind eye to other subsidies even beyond 2017 [26].

Second, India's food-security law need not lead to increases in rice and wheat purchases. The government intended to buy more than 30m tonnes, a 13% rise on the last haul. But its rice reserves exceeded 21.2m tonnes half way through the season—over twice the recommended buffer stock (see chart, India's grain stocks). Stores get so bloated that grain threatens to spoil and bureaucrats dump it on the world market: India is the world's largest exporter of rice. To help poor farmers, India could instead focus on producer subsidies that are not linked with levels of output, such as cash transfers. The WTO finds this sort of help more palatable [26].



Third, it could phase out minimum support prices, which tend to favour bigger, richer farmers (and which 62% of Indian farmers do not even know exist). With the money saved, it could focus on subsidising grain sales to India's poor. No-one objects to using state funds to subsidise consumption, at least not on trade grounds [26].

The Gulf countries have long been preoccupied by the question of how to feed their people. Turmoil in the Arab world since 2011 has spiced up such concerns, which are further sharpened by a rise in the price of staples since 2009 and memories of a threatened 1970s grain embargo. The region's population is expected to grow by 40% between 2010 and 2030. Some Gulf countries import as much as 90% of their food (see chart, food imports) [27].



Their governments have been unsure of the best way to keep everyone fed—and content. Qatar reportedly declared that it would produce 70% of its food at home by 2023, by adopting new technologies of desalination and hydroponics. That idea was soon dropped. Saudi Arabia, with the busiest farm sector among the six countries of the Gulf Co-operation Council, scaled back wheat grown by irrigation because it was draining non-renewable aquifers [27].

Heavy reliance on imports is problematic when countries such as Argentina suddenly restrict their exports in

response to rising prices. Buying farmland in countries such as Sudan, Tanzania and Pakistan is another Gulf ploy. The UAE and Saudi Arabia are among the top ten investors in land abroad, according to Land Matrix, a body that tracks such deals. But this has drawbacks, too. Getting big projects off the ground in places that lack infrastructure is tricky [27].

Many of the region's rulers are now considering investing in food companies abroad, often in more developed countries. The UAE's Al Dahra Agriculture, which works closely with the government and owns land abroad, recently bought eight farm companies in Serbia for \$400m. It has also invested in an Indian rice producer. In addition, countries like Saudi Arabia are looking at ways of keeping strategic food reserves [27].

Gulf rulers may end up following a mixture of such strategies to fill their peoples' stomachs. They should at least be commended for grappling with the problem, says a regional food expert. Poorer and hungrier Arab countries, like Egypt and Yemen, have far fewer policy options to address it [27].

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