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Challenges for Less Developed Countries: Agricultural Policies in the EU and the US

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and Yichuan Wang

December 2007

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Challenges for Less Developed Countries:

Agricultural Policies in the EU and the US

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Abstract

Agricultural policies adopted by developed countries are considered distortional and detrimental to less developed countries (LDCs). This paper discusses the adverse impacts on less developed countries of the agricultural support regimes of the European Union (EU) and the United States (US). Despite the fact that the budget for agriculture in these constituencies has the same order of magnitude, we find that the EU relies much more heavily on agricultural support than does the US. Specifically, the EU provides agricultural producers with an amount of support that is about two-and-a-half times that of the US, and for most commodities a larger share of farmers' income stems from support measures as well. While the composition of producer support differs between the EU and US, the per-dollar negative impact of the policies on farmers in LDCs is about equal. Finally, we analyse the medium-term impact of the 2003 reform of common agricultural policy in the EU. We estimate the reform will lead to a reduction of EU producer support of 20 percent by 2013 and will reduce the per-dollar negative impact on LDCs of the policy as well.

Keywords: agricultural support, European Union, US, developing countries, least-developed countries

Challenges for Less Developed Countries: Agricultural Policies in the EU and the US

1. Introduction

Agriculture is the make-it-or-break-it issue in the World Trade Organization's (WTO) Doha Round of negotiations, with the impasse on reforming agricultural support programs central to the potential collapse of trade negotiations (Newfarmer 2006). A trade agreement that limits agricultural support programs in developed countries is important for facilitating free trade, but also to the economic development of less developed countries (LDCs).[1] The purpose of this paper is to investigate the impact on LDCs of agricultural support programs by developed countries.

We will limit our analysis to the agricultural support programs of the European Union (EU) and the United States (US). Both constituencies have very sizable support programs with roughly similar budgets. In 2004 the budget of the EU's Common Agricultural Policy (CAP) amounted to €46.8 billion (European Communities, 2004), while the budget of the US Department of Agriculture was $77.7 billion. However, there are a variety of different agricultural support measures and these may have very different implications. Also, agricultural support may go beyond budget lines. For example, market price support, a popular support measure, is often instituted through imposing import tariffs. Such tariffs protect local producers but they have no significant budget implications for governments.

In this paper we focus on producer support programs as these have the strongest potential impact on production incentives. Production incentives, in turn, affect production levels in the EU and the US and hence also affect LDCs through world market prices and traded quantities of

[1] The United Nations draw a distinction between developing countries and least-developed countries. In this paper we use the acronym LDC to represent a country of one of these sets.

agricultural commodities. We will show that producer support in these constituencies differs substantially, despite the fact that the EU and US budgets on agriculture are of roughly the same magnitude. The OECD data we employ shows that producer support in the EU-25 in 2004 amounted to €110 billion, while producer support in the US came down to $43 billion, i.e. roughly forty percent the EU amount. The data also shows that the proportion of farm receipts accounted for by producer support was about twice as high in the EU as in the US. However, with a few exceptions (eggs producers in the EU and the US, and meat producers in the US), producer support accounts for a fifth or more of farmers' income in both constituencies.

Not all forms of producer support distort production incentives to the same degree. We present diagrams to explain the distortional effects of the various components of producer support. We use this analysis to decompose producer support in the EU and the US according to the implied harm on LDCs. We find that in 2005 about a half of the producer support in both the EU and the US was of the most damaging type for LDCs. The US was a little worse than the EU in this respect, however the percentage of "somewhat harmful" support measures there was lower than that of the EU. In terms of composition, therefore, producer support in the EU and the US were roughly equally harmful to LDCs. In 2005 the (negative) footprint of the EU agricultural policy was still larger than that of the US, but this had to do with the magnitude of producer support, not its composition.

In 2003 the common agricultural policy in the EU underwent an important reform. The 'Single Farm Payment', a subsidy decoupled from agricultural production levels (or input use) was introduced, and EU member states also agreed to lower the expenses for direct producer support by 3 percent of the CAP budget annually and earmark the funds freed up for "rural development" (this was termed "modulation"). We study the medium-term impact of this reform

and find that it will reduce the level of support by 20 percent and imply a mix of support measures which is less harmful to producers in LDCs. However, in 2013 the CAP will still have a very negative impact on LDCs absent further reforms. The most substantial reduction of harmful support can be realized by reducing price support in the beef, pig meat, poultry and sheep meat markets.

Our findings suggest that protectionist agricultural policies in both jurisdictions have a significant adverse impact on LDCs, and that the damage done by the EU is greater than by US. We conclude therefore that agricultural support programs do need to be addressed again in future multilateral trade negotiations if developed countries are serious about the well being of those that are less well off. However, forces to reform will face fierce opposition from local agricultural producers, particularly in the EU. A greater proportion of the EU workforce is employed in agriculture than the US. This might also (partially) explain the currently higher level of agricultural support in the EU, as more voters there have a stake in agriculture.

We proceed as follows. Sections 2 and 3 further motivate our paper. In Section 2 we illustrate the importance of agriculture in developed and LDCs by examining the role of agriculture in employment and trade. In section 3, we present evidence on 30 least-developed countries that illustrates the crucial dependence of these countries on agricultural exports, generally, and often on just a handful of commodities. In section 4 we summarize the data on producer support in the EU and the US. Our core arguments are provided in Sections 5 and 6. In Section 5 we first explain graphically how different support measures affect LDCs and afterwards decompose producer support in the EU and the US in terms of the implied harm on producers in LDCs. In Section 6 we review the empirical evidence regarding the damage of agricultural policies in rich countries on LDCs and analyse the anticipated consequences of the

2003 CAP reform in the EU. Section 7 concludes.

2. Agriculture: What is the Big Deal?

The Role of Agriculture in the Labor Force

As an economic activity, agriculture is everywhere in secular decline relative to other sectors. Less than fifty years ago, over 60% of the world's entire labor force was devoted to agriculture. Only in the last twenty years has agriculture accounted for less than half of the global workforce, with some two-fifths of the global work force employed in agriculture today. Yet, in absolute terms the number of agricultural workers has risen steadily, from 850 million to 1.347 billion over the period 1961-2004 (World Resources Institute 2007). This is misleading, however, as agricultural workforce figures for LDCs generally include all rural laborers rather than only those engaged in agriculture.

When distinguishing between developed countries and LDCs, we find that the absolute agricultural/rural workforce is shrinking in developed countries, but expanding in LDCs. From 1992 to 2004, the agricultural labor force fell by 28% in developed countries, from 60 million to 44 million, while the rural workforce in LDCs expanded by 12%, from 1.1 billion to slightly more than 1.3 billion workers. Clearly, a significant number of people directly rely on agriculture for their livelihood, a vast proportion of which are in LDCs.

The share of the workforce employed in the agricultural sector is also significantly higher in LDCs than in rich countries (Figure 1). In 1961, 76% of workers in LDCs were employed in agricultural areas compared to 23% of workers employed in agriculture in developed countries. Nearly fifty years later, the difference persists: In 2004, agricultural regions employed 53% of workers in LDCs, but agriculture employed only 6% of workers in developed countries.

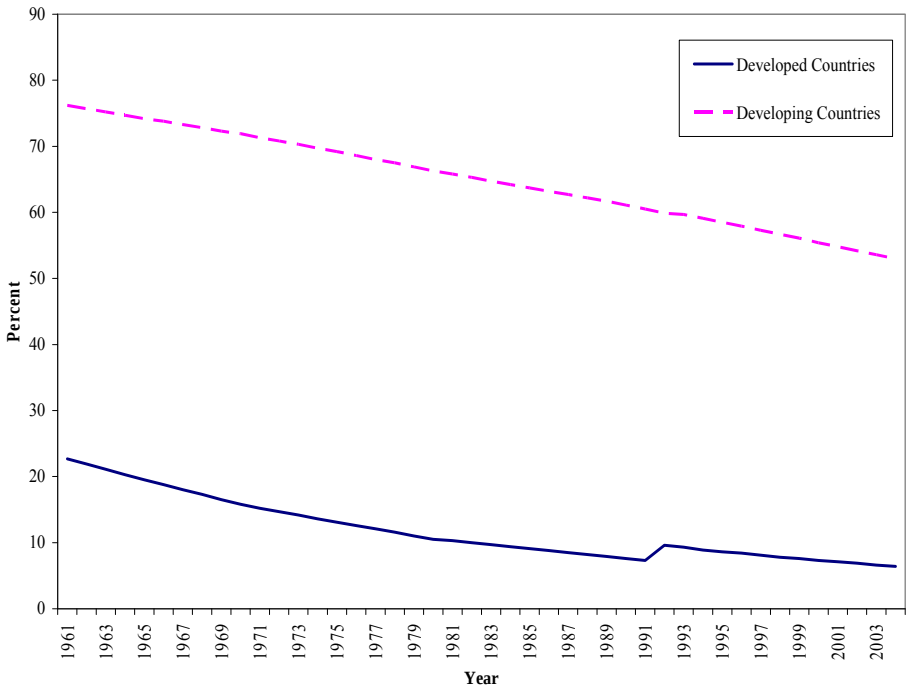

Figure 1: Developed & LDCs' Agricultural/Rural Labor Force as a Percent of Total
(Source: World Resources Institute 2007)

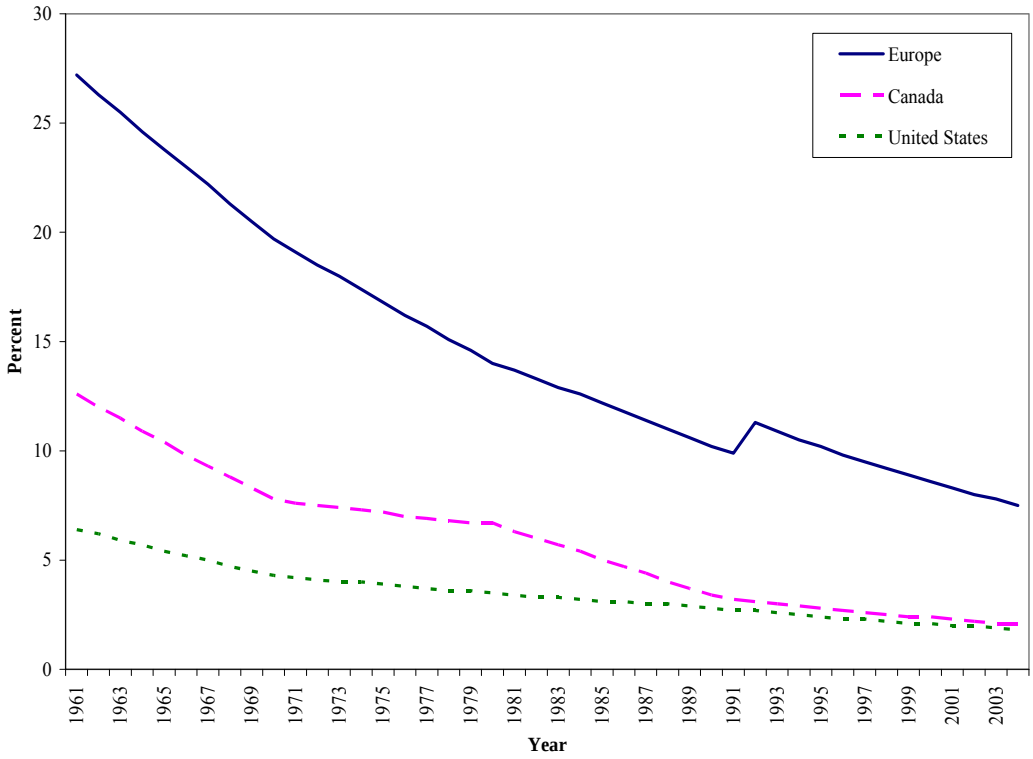

Figure 2: Agricultural Labor Force as a Percent of Total: Europe, Canada and the United States (Source: World Resources Institute 2007)

While both the EU and the US experienced a decline in the share of agricultural workers in the labor force, agriculture employs more of the EU's workforce than in the US (Figure 2). The current agricultural share of the workforce in Europe exceeds US levels of the past half century. Agriculture accounted for 6% of US workers in 1961 and less than 2% in 2004. In Europe, agriculture accounted for over one-quarter of workers in 1961, and some 8% today. In absolute terms, Europe's agricultural labor force is 27 million workers, some ten times greater than the 3 million agricultural workers in the US.

The Role of Agriculture in Trade

When it comes to international trade, agriculture's role in global merchandise trade has diminished over the last twenty-five years (Figure 3). This trend holds true for developed, developing and least-developed countries alike. However, while developed countries experienced a smooth decline in the significance of agricultural trade in total merchandise trade, the changes experienced by LDCs has been far less stable. For example, agricultural imports in the least-developed countries jumped from 6% of merchandise imports in 1994 to 14% in 1995, yet dropped sharply from 10% in 2004 to 4% in the next year (Figure 3b). The least-developed countries, and to a lesser extent developing countries, appear to be influenced by fluctuating circumstances in agricultural trade more than developed countries.

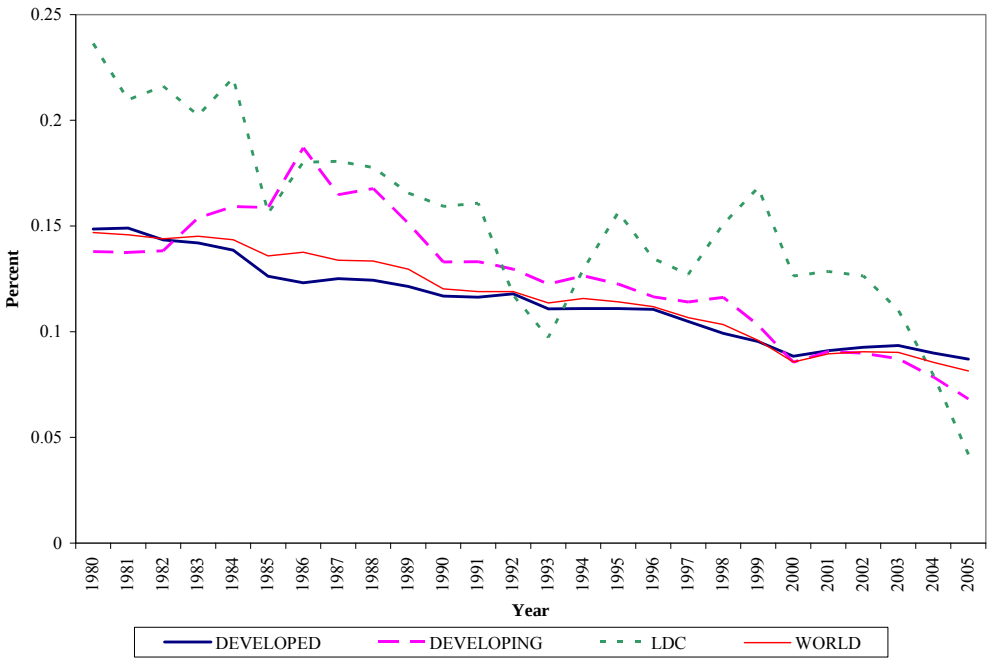

Fig. 3(a)

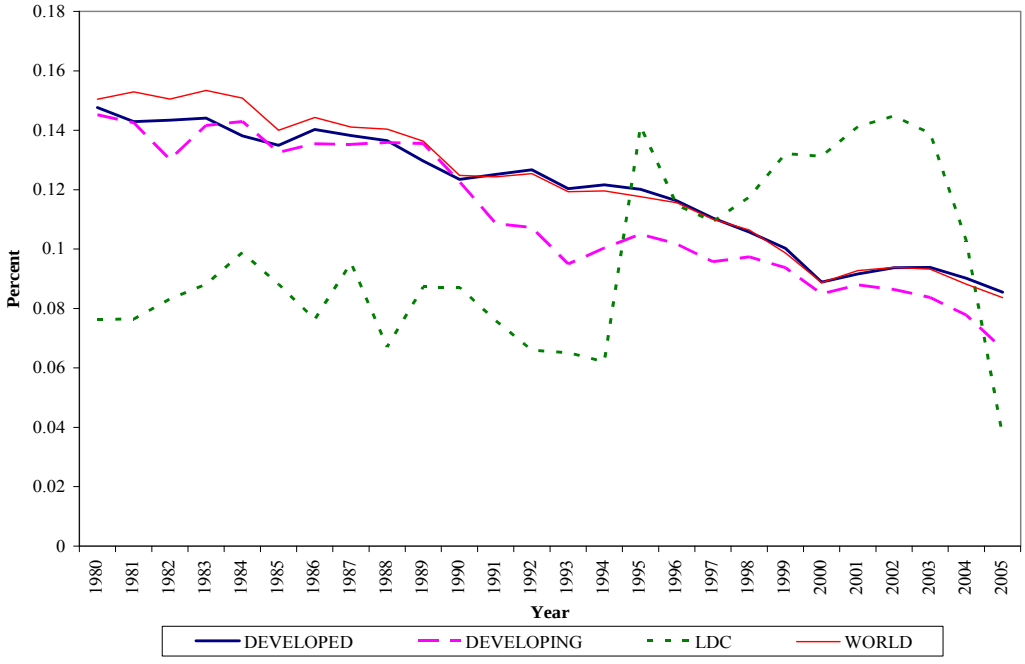

Fig. 3(b)

Figure 3: Agricultural Trade: (a) Ratio of Agricultural Exports to Total Merchandise Exports; (b) Ratio of Agricultural Imports to Total Merchandise Imports (Source: WTO 2007a)

Over the past twenty-five years rich countries have been net importers and LDCs have been net exporters of agricultural commodities (Figure 4). As demonstrated in greater detail in Figure 5, LDCs were net exporters of agricultural products during the 1980s but became net importers in the early 1990s. Net agricultural imports by LDCs peaked in 2003.

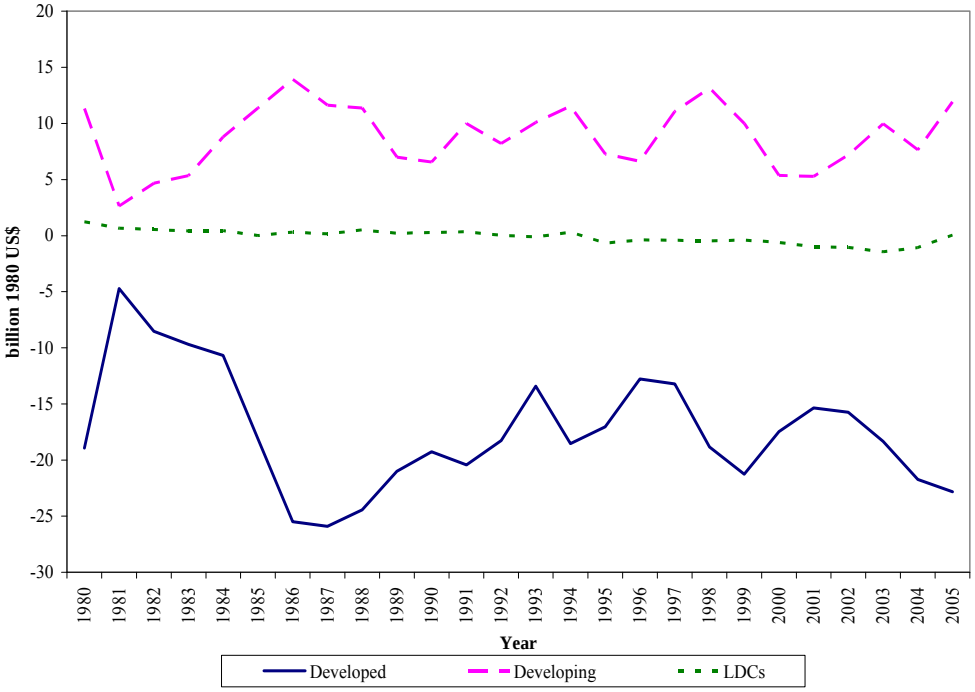

Figure 4: Agricultural Net Exports by Value: Developed, Developing and Least Developed Countries, 1980-2005 (Source: WTO 2007a; Federal Reserve Bank of Minneapolis 2007)

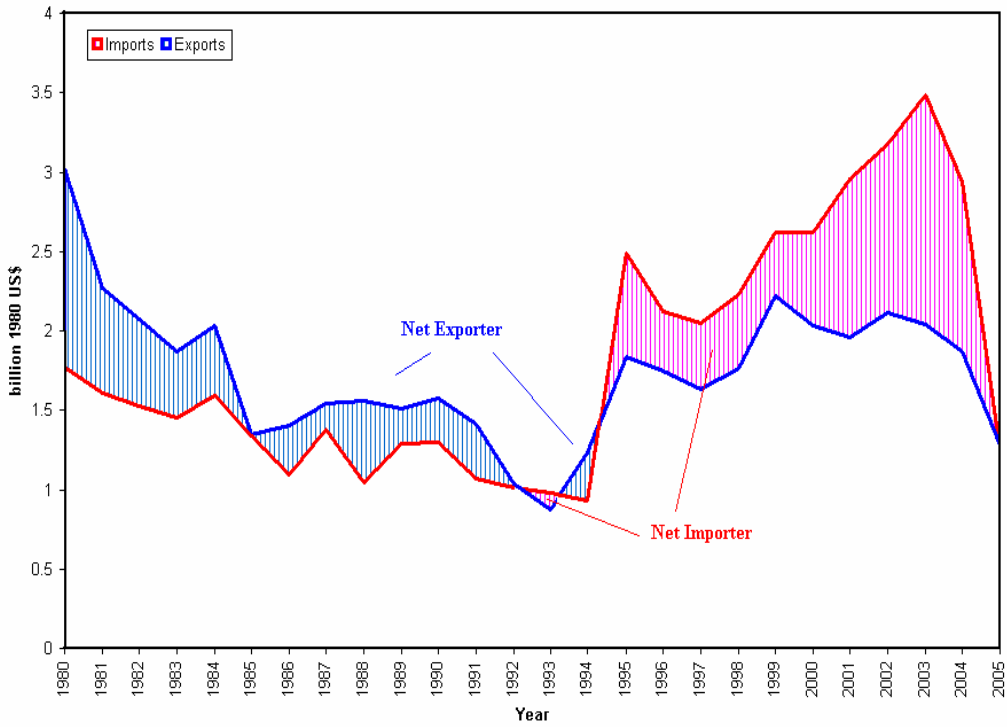

Figure 5: Agricultural Position of Least Developed Countries, 1980-2005 (Source: WTO 2007a; Federal Reserve Bank of Minneapolis 2007)

3. Least-developed Countries and Agricultural Export Dependency

An aspect that warrants attention is the degree of dependency on agriculture of the least-developed countries. The Food and Agriculture Organization (2006) provides information on the share of agricultural commodities in total exports for 30 least-developed countries. As indicated in Figure 6, for these countries agriculture currently accounts for about 25 percent of total exports on average. Comoros, Ethiopia, Burundi, Malawi, Guinea-Bissau, Solomon Islands, Benin, Burkina Faso and Liberia depend on agriculture to a great extent, often for more than half their exports. Reliance on exports has declined in the last two decades for 22 least-developed countries, although Togo, Zambia, Guinea-Bissau, Solomon Islands, Benin, Burkina Faso and Liberia grew more dependent on agriculture for exports.

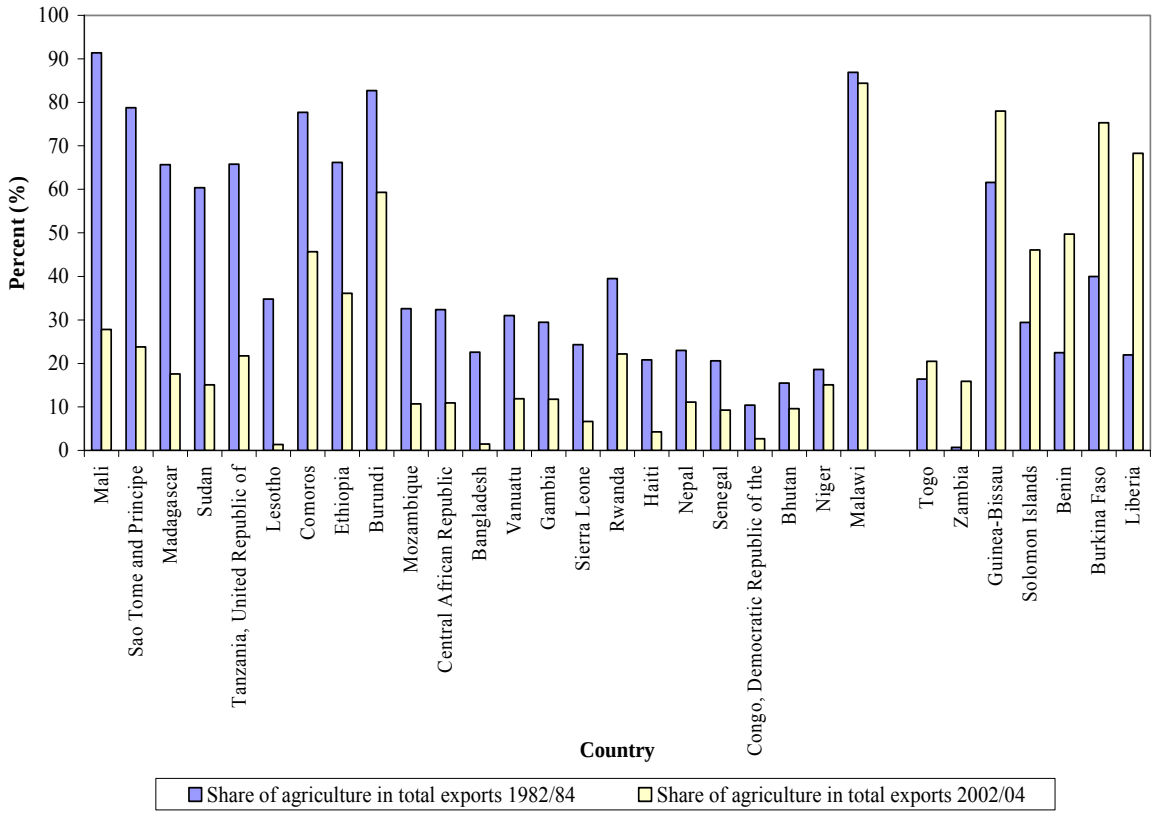

Figure 6: Average Share of Agriculture in Total Exports of Least Developed Countries, during 1982-84 and 2002-04 (Source: FAO 2006)

The FAO data shows furthermore that in several least-developed countries merely a few agricultural commodities account for a large share of agricultural exports. For instance, virtually all of Guinea-Bissau's agricultural exports consist of its four top farm commodities. Finally, evidence presented by Aksoy and Beghin (2004, p.329), for example, indicates that least-developed countries also rely largely on agriculture for economic growth and development. These poorest countries require access to global agricultural markets to exchange the farm goods (in which they have a comparative advantage) for capital goods and other inputs (such as fertilizer and pesticides) that can help drive economic development.

4. EU and US Agricultural Support Policies: A Comparison

Agricultural Policy Overview

Contemporary agricultural policies in the US date back to the 1930s. Agricultural programs in the US provide direct and indirect support through commodity policies and programs targeting food assistance, rural development and agri-environmental concerns (US Department of Agriculture 2007). Along with the expansion of US agricultural support programs beginning in the 1980s, there has been increasing concern about the negative impact that such programs have on the environment. Support programs generally encourage production, and thus increased use of chemicals and expansion onto marginal land. In response, US farm programs have included compliance requirements (e.g., performance of certain good agricultural practices in order to remain eligible for payments), legislation to prevent plowing of grassland ('Sodbuster' legislation) or draining of wetlands, incentives to idle land, and efforts to decouple producer support payments from production decisions. Since programs that pay farmers for non-performance are generally eschewed by the public, US farm bills have vacillated back and forth on some of these issues. For example, in 2005, one-quarter of subsidy payments were independent of output decisions, but, rather than using decoupling to wean farmers off farm subsidies, Congress appears to be entrenching direct payments at the same time that it encourages production based subsidies (*The Economist*, 3 November 2007, p.37).

Agriculture has also traditionally been a priority for economic leaders in Europe, particularly as a result of food shortages experienced during World War II. After the war, the leaders of Belgium, France, Germany, Italy, Luxembourg and the Netherlands founded the European Economic Community in 1957 by signing *The Treaty of Rome*, which included a plan for a common agricultural policy (Baldwin and Wyplosz 2004). In July 1958, the Stresa Conference outlined the principles of the contemporary Common Agricultural Policy (CAP). In

1962, the CAP was implemented following its adoption by the six founding member states of the EU. Although modified in the intervening years, the CAP continues to be the cornerstone of EU agricultural policy, regulating the production, processing and trade of agricultural goods. At its inception the CAP had five objectives: (1) increasing agricultural productivity, (2) achieving fair living standards in the agricultural community, (3) stabilizing markets, (4) assuring availability of supply, and (5) ensuring reasonable consumer prices (Treaty Establishing the European Community [TEC], art. 33). To indicate the current importance of the CAP to the EU, in 2006 the CAP accounted for about 45 percent of the EU budget (European Communities, 2006a). For a historical overview of the CAP, see Fouilleux (2006).

Recent reforms to the CAP have emphasized decoupling of subsidy payments from production and greater reliance on international market forces. The former is addressed through the 'single farm payment' whereby producers are given a direct payment based on past production but decoupled from current or future production. However, the EU gives member states some flexibility in administering the program and adding to payments. As a result, some states have tended to favor coupled payments as this is more politically acceptable. Further, if farmers think that changes to the single farm payment might occur in the future and that these would be based on the most recent production levels at that time, the overall effect of decoupling might be weakened. At the same time, the EU has lowered support payments to move prices towards international levels, thereby reducing farm payments and/or the extent of export subsidies.

Measuring Agricultural Support Levels

It is important to have a common yardstick to gauge the level of support for agriculture in the two jurisdictions. One measure is the monetary value of transfers through different policy

instruments. This indicator is available from the World Trade Organization in the form of an Aggregate Measurement of Support. A variety of other measures have been developed by the OECD (2004; 2005), each of which uses a different approach to measuring agricultural support. The OECD measures include the Producer Support Estimate, Consumer Support Estimate, General Services Support Estimate, and Total Support Estimate. The OECD also computes a Nominal Protection Coefficient (NPC) and a Nominal Assistance Coefficient (NAC).

The Producer Support Estimate (PSE) is a commonly accepted standard for quantifying agricultural support to farmers. The first component of the PSE consists of *market price support*. For each commodity market price support is calculated as the difference between the domestic producer price (the 'farm-gate' price) and the world market price multiplied by the volume of domestic production. The domestic-border price gap can arise due to price support for local producers, but also due to import tariffs and/or quotas. Thus, there is not necessarily an actual money transfer to the farmer in case of market price support. *Direct budgetary transfers*, the second component of the PSE, are subsidies to farmers based on factors such as the quantity of commodities produced or farmland area. "Foregone revenue" (for the policy makers), i.e. charging a input costs below what others pay for their inputs, also falls under the umbrella of direct budgetary transfers. Tax rebates for energy, water subsidies for irrigation, and loan guarantees are examples of foregone revenues.

The Consumer Support Estimate (CSE) measures annual monetary transfers to consumers of agricultural goods. The base-line price to compute the CSE is the border price, which explains why the CSE is often negative (i.e. a consumer tax). For instance, when consumers pay the farm-gate price (and this price exceeds the word market price), they essentially pay the costs of market price support. In partially offsetting such a consumer tax, governments provide consumer food

subsidies, for instance, in the form of less expensive food for low-income individuals. The General Services Support Estimate (GSSE) represents annual monetary transfers to agriculture not targeted to individual farmers or consumers. An example is research and development funding in aid of the entire agricultural sector. The total monetary amount of aggregate transfers can be captured in the Total Support Estimate (TSE), i.e. the sum of the PSE, CSE and the GSSE, minus any receipts from import tariffs. Of the two coefficients computed by the OECD, the NPC is the ratio of producer to border prices, while the NAC represents the ratio of total farm receipts to farm receipts without support.

We employ the PSE as our main measure of agricultural support. Producer support has the strongest potential to impact production incentives. As we will show in Section 5 these production incentives, in turn, affect production levels in the EU and the US and hence also LDCs through export levels and world market prices of agricultural commodities. As we will also see below, not all producer support is necessarily distortional. For example, market price support is a distortional type of support, whereas lump-sum transfers to farmers do not materially distort production decisions and hence have no impact on LDCs. However, detailed decompositions of the PSE data are available. PSE data can be analyzed at the country and commodity levels, over time and by PSE component. Other OECD measures lack this degree of detail.

Producer Support Estimates: The EU and the US

We compare agricultural support levels in the EU and the US in terms of absolute PSE, Percentage-PSE (the PSE as a percentage of the value of gross farm receipts; henceforth %PSE), and PSE at the commodity level. The %PSE facilitates comparison across goods, space and time, in contrast to the PSE which is in absolute monetary terms and thus dependent on the size of a

country's agricultural sector and the inflation rate. Most recent PSE data indicate that aggregate OECD support to agriculture amounts to US$280 billion in 2005. As a percentage of the value of gross farm receipts, the %PSE is 31% in 2005, indicating that 69% of the gross income of an average farmer in the OECD came from the sale of products while 31% came from producer support, not an inconsequential proportion.

Over the two decades between 1986 and 2005, the PSE in the EU has gradually increased to €108 billion. In the US, the PSE was $39 billion in 1986, declined to a low of $21 billion in 1995, and peaked in 1999 at $56 billion. In 2005 the PSE in the US reached $43 billion. Averaged over 1986 to 2005, the %PSE in the EU was 36%, meaning agricultural producer support contributed 36%, and the sale of products 64%, of gross farm receipts (Figure 7a). Over the same twenty years, the US had an average %PSE of 18%, half the EU level, indicating that farmers derived 82% of receipts without any support (Figure 7b).

Now turn to the PSE by commodity. In absolute terms, the EU spends more on agricultural support than the US for all commodities except maize (corn), oilseeds (primarily soybeans and canola), and eggs (Figure 8). In the EU, assuming no producer support for wool (data unavailable for the EU), most of the agricultural support budget was devoted to 'other commodities', followed by beef & veal, milk and wheat (Figures 8 and 9(a)). For the US, 'other commodities' also receives the largest share of agricultural support, followed by milk, maize and oilseeds (Figures 8 and 9(b)).

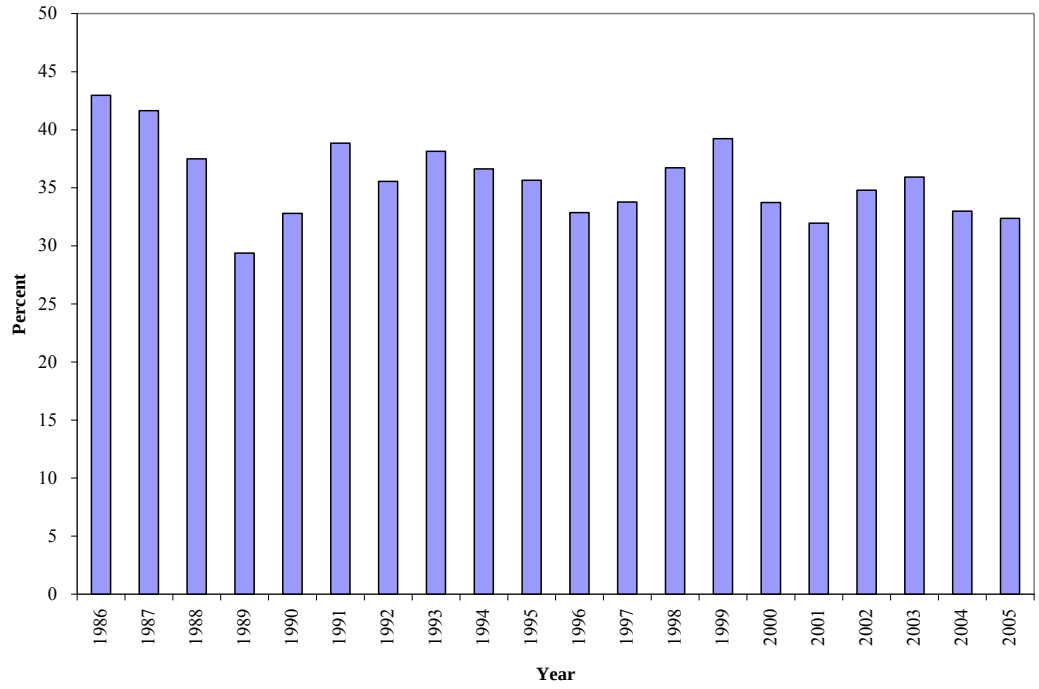

Figure 7(a): %PSE in 2005, EU25 (Source: OECD 2005)

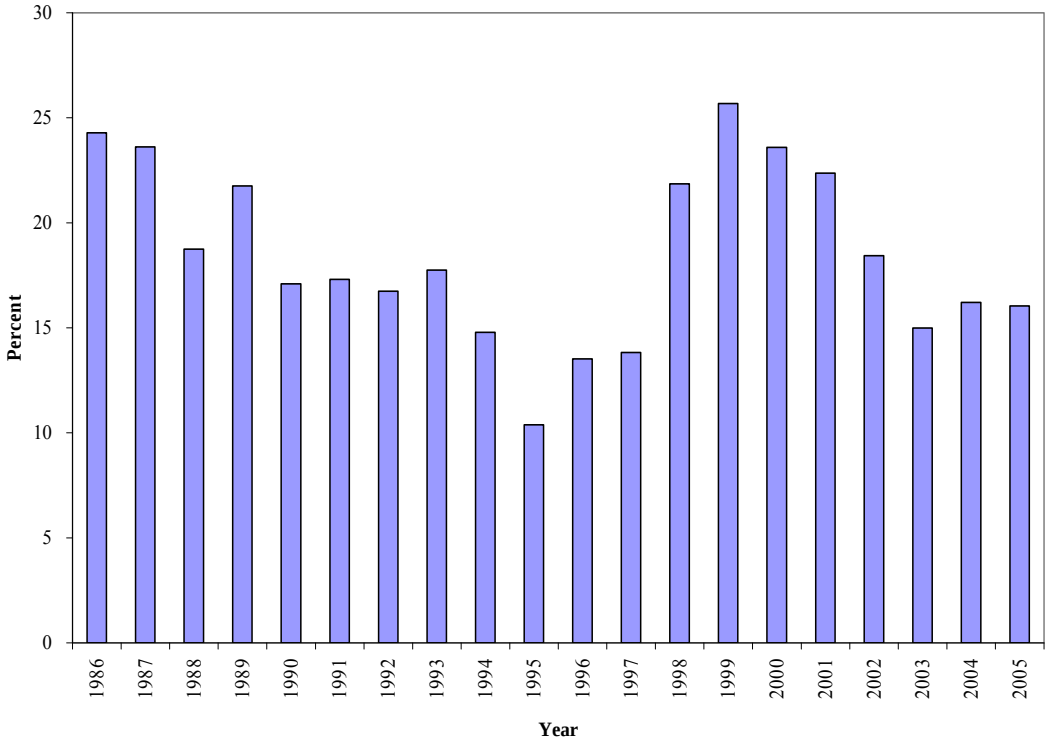

Figure 7(b): %PSE in 2005, United States (Source: OECD 2005)

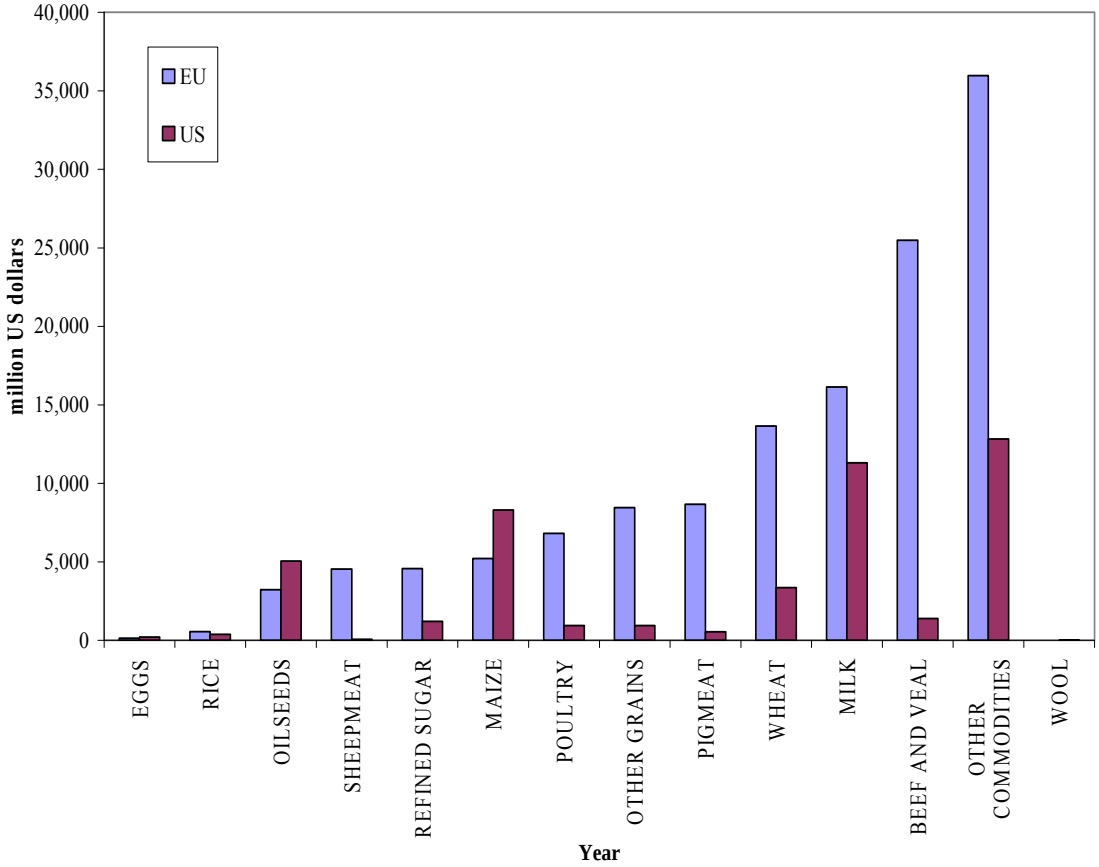

Figure 8: PSE by commodity in 2004, EU and US (Source: OECD 2005)

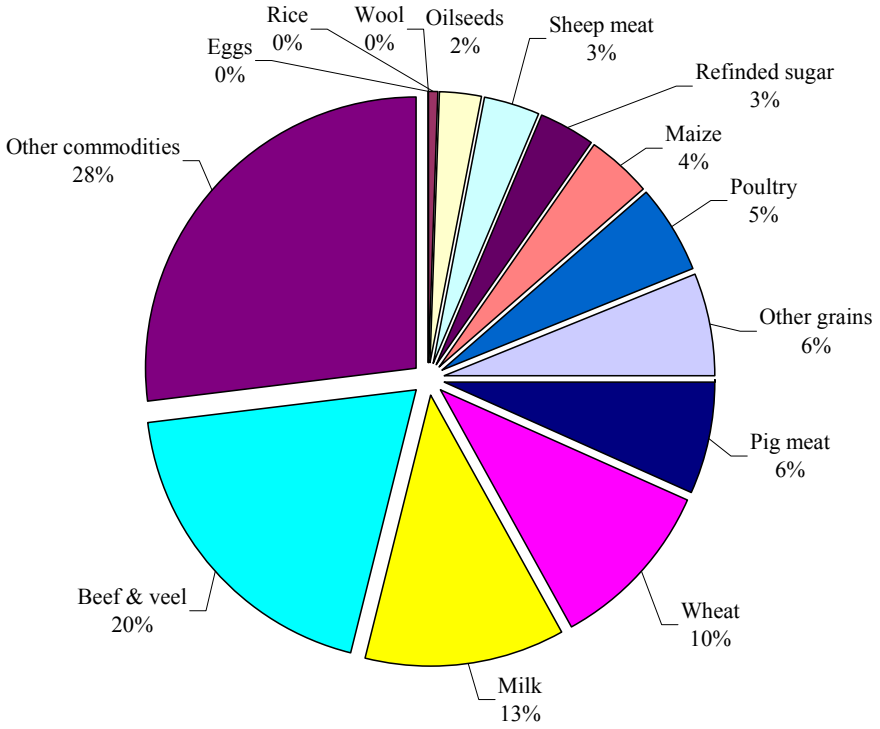

Figure 9(a): PSE, commodity shares in 2004, EU25 (Source: OECD 2005)

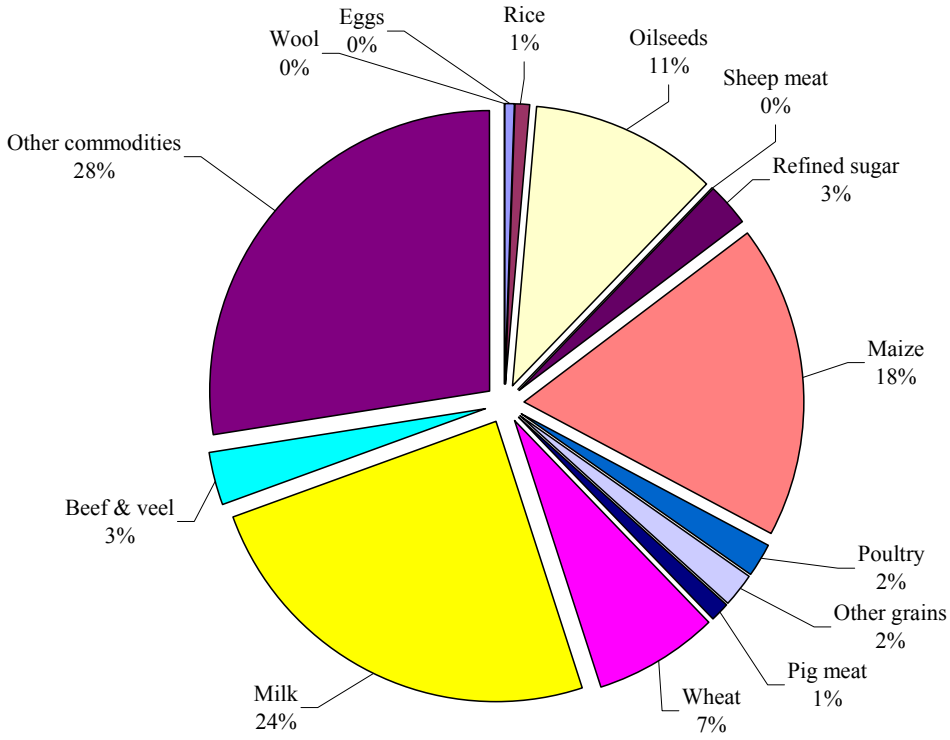

Figure 9(b): PSE, commodity shares in 2004, US (Source: OECD 2005)

In the EU, beef & veal, refined sugar, and sheep meat are the top three agricultural commodities in terms of %PSE (Table 1). The %PSE of commodities has remained relatively constant over the period 1986-2004. In the US, refined sugar, milk and wheat receive the most producer support as a percentage of gross farm receipts, but during the period 1986-2004, wool, maize and rice were the top three commodities in terms of %PSE. Based on 2004 data, the role of agricultural support is higher in the EU than the US for the four most important grains: wheat, maize, rice and oilseeds. Producer support constitutes a higher percentage of total farm receipts in the EU than in the US for refined sugar, but the degree of producer support for milk is the highest in the US. The EU markets for beef & veal, pig meat, sheep meat and poultry rely much more heavily on transfers to producers than do their US counterparts. Agricultural support for eggs is modest and slightly higher in the US than in the EU.

Table 1: Percentage-PSE by commodity, 2004 and 1986-2004 average, EU and US

	EU 2004	**US 2004**	**Higher**	**EU Avg**	**US Avg**	**Higher**
Wheat	39%	32%	**EU**	46%	12%	**EU**
Maize	43%	27%	**EU**	44%	44%	SAME
Rice	39%	18%	**EU**	45%	37%	**EU**
Oilseeds	35%	24%	**EU**	51%	4%	**EU**
Refined sugar	65%	56%	**EU**	55%	37%	**EU**
Milk	30%	39%	US	50%	23%	**EU**
Beef & veel	68%	4%	**EU**	61%	5%	**EU**
Pig meat	24%	4%	**EU**	16%	7%	**EU**
Sheep meat	52%	13%	**EU**	62%	4%	**EU**
Poultry	46%	4%	**EU**	36%	34%	**EU**
Eggs	2%	4%	US	8%	9%	US
Wool	No info	24%	N/A	No info	51%	N/A

(Source: OECD 2005)

It is clear that agricultural support plays a greater role in the EU than in the US as determined by the absolute magnitude of producer support, as well as percentage producer support, i.e. the proportion of farm receipts accounted for by agricultural support. US grains, oilseeds, and meat producers rely less on public support and more on markets than EU producers. The difference between the relative support levels for sugar, milk and eggs are relatively minor. The most important point is that, apart from EU and US eggs producers and US meat producers, producer support accounts for quite a significant proportion of agricultural producers' income in both constituencies.

5. The Impact of Agricultural Support Policies on Less Developed Countries

To examine the impact on LDCs of agricultural support programs in developed countries, it is necessary to first consider the incentive effects of such programs on local farmers. These incentive effects depend on both the magnitude and the composition of producer support since some of its components are more distortional than others. In this section we look into decomposition of the PSEs for the EU and the US to assess their effect on LDCs.

The Composition of Producer Support

Market price support traditionally has and continues to account for a large share of the PSE in both the EU and the US. Market price support made up nearly half of the PSE in the EU in 2005, followed by "payments based on area planted or animal numbers", which took up around a fifth (Figure 10a). The CAP underwent a substantial reform in 2003. We will discuss this reform later in the paper but like to point out here that it resulted in the rapid growth of "payments based on historical entitlements" in 2004 and 2005 (Figure 10a). Such payments are independent of production amounts or input use. In the US, market price support accounted for a fifth of the PSE, as did two other components referred to as "payments based on area planted"

and “payments based on input use” (Figure 10b). Observe that in the US “payments based on historical entitlements” were made since 1996.

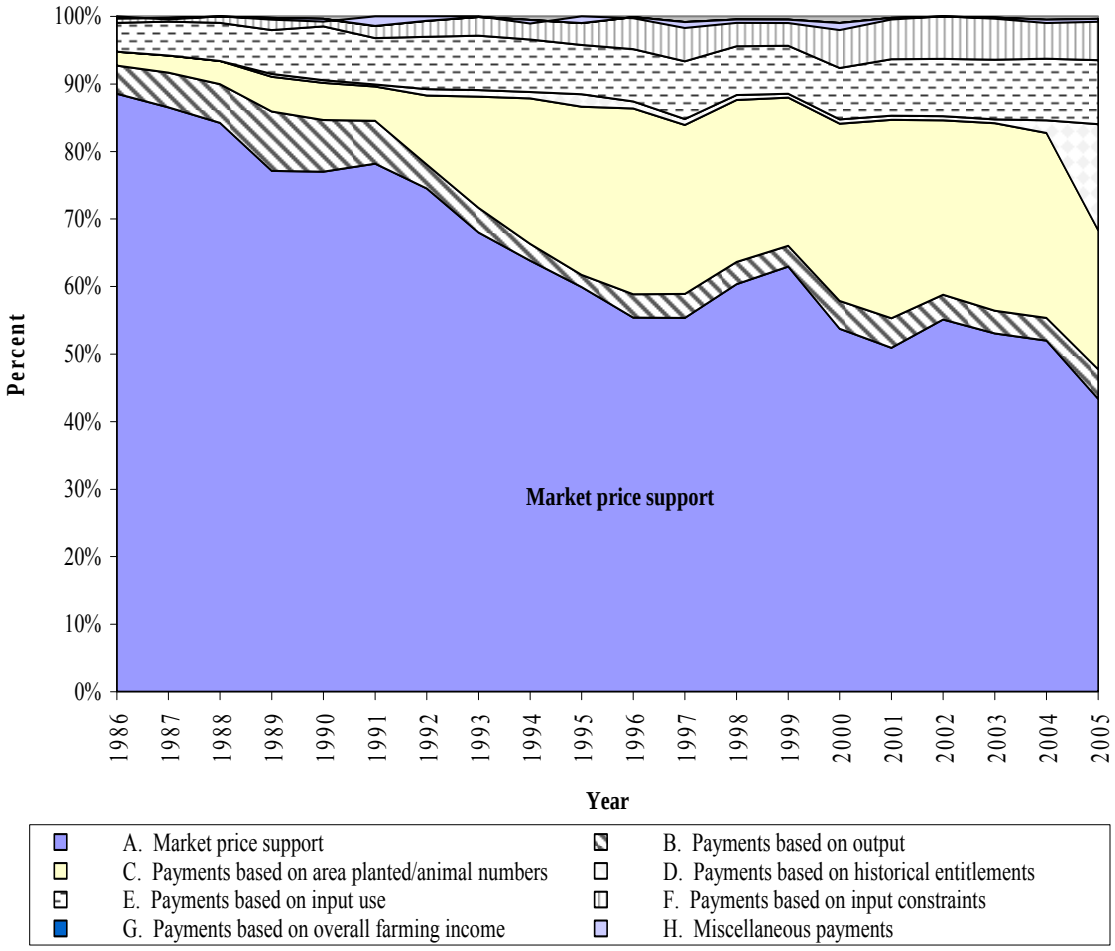

Fig 10(a)

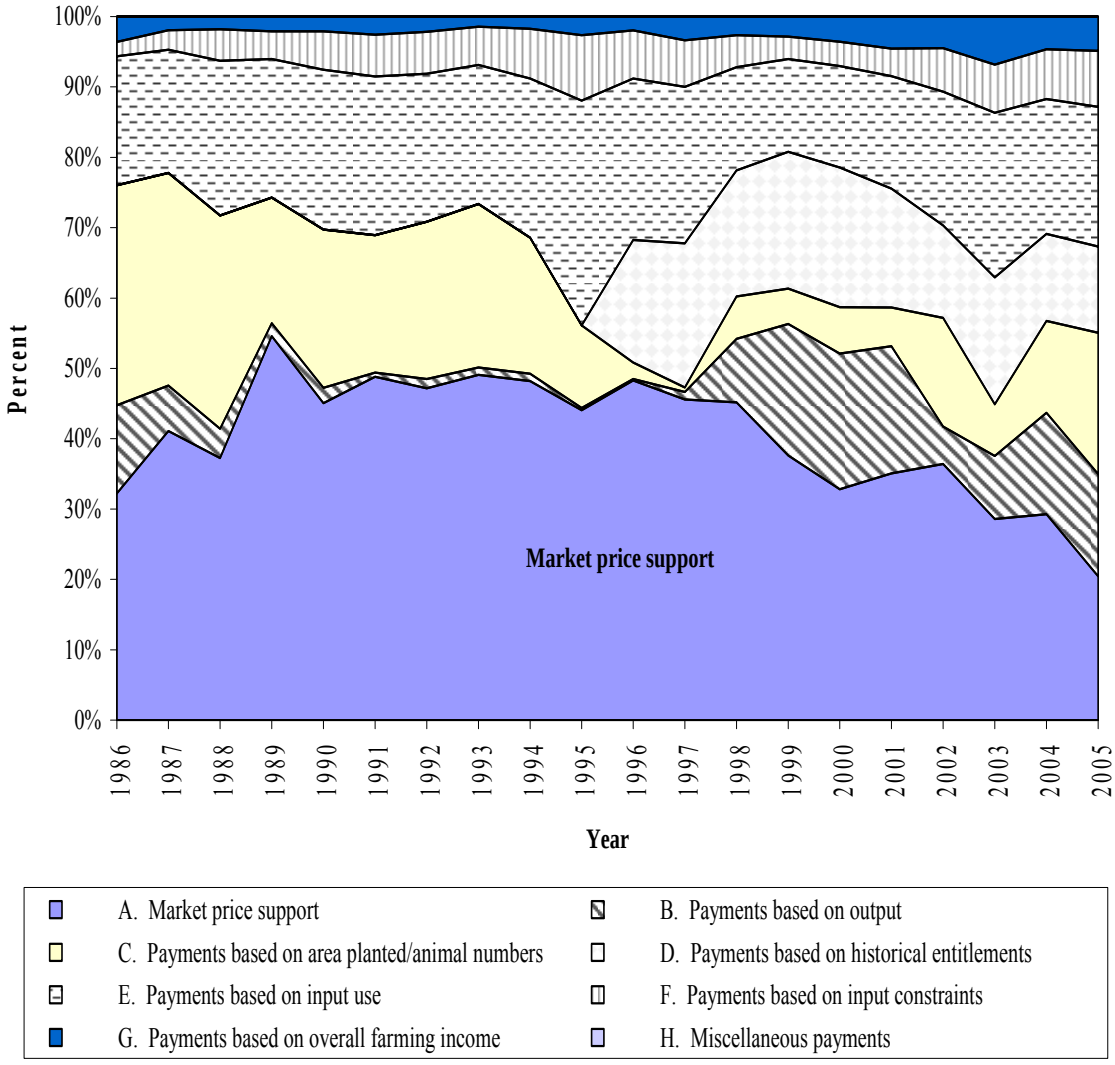

Fig 10(b)

Figure 10: Composition of the PSE: (a) EU25, (b) US (Source: OECD 2005)

Market Price Support.

Figure 10 has highlighted the importance of market price support on the PSE figures. The domestic production and welfare effects of market price support can be examined with the aid of Figure 11 which represents a typical agricultural commodity market of a developed country. Assume the equilibrium price and quantity would be given by P_A and Q_A, respectively, in the absence of any trade (the autarky situation); and that under free trade the jurisdiction would be trading agricultural goods on international markets, so that the domestic price is identical to the

world price, $P_{world} < P_A$. Under free trade Q_s^w would be domestic production, Q_d^w domestic consumption, and the difference, $Q_d^w - Q_s^w$, imports. Market price support raises the farm-gate price above the world market price. In practice this is accomplished by either a support price for local producers, or by import tariffs or quota. Either way, if the farm-gate price of the agricultural commodity is supported at $P_{Support}$, farmers will increase production to Q'_s but only the amount Q_d^w will be consumed domestically, leaving a surplus of $Q'_s - Q_d^w$ to be disposed of on international markets. Notice that the export subsidy required to dispose of the surplus is given by area *bcgf*.

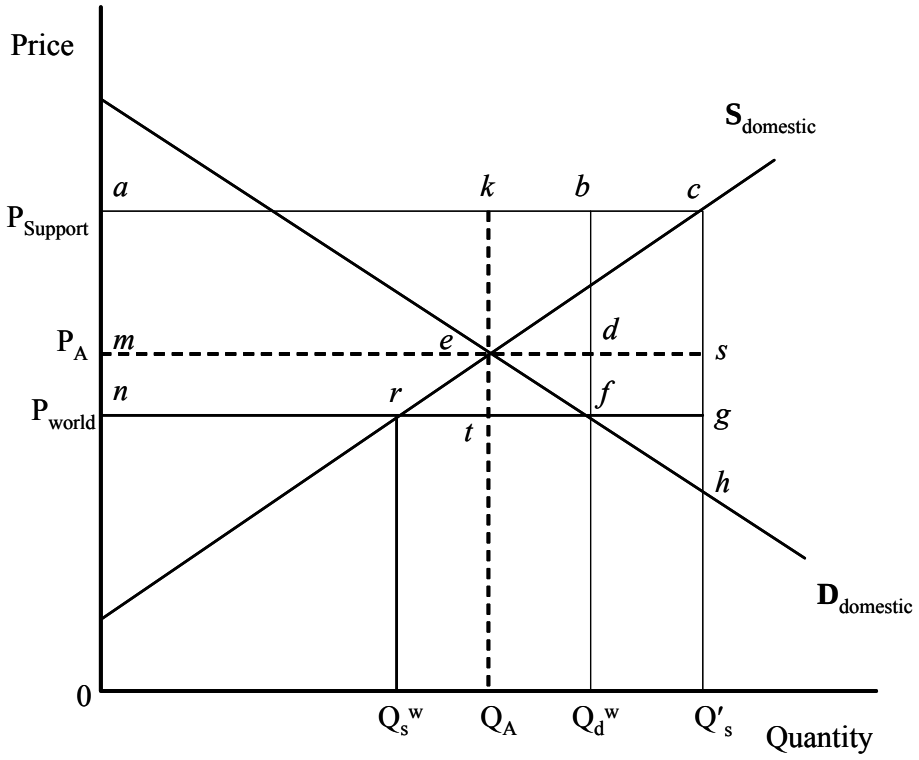

Figure 11: Rich Country Market: Impact of Market Price Support

The overall burden to the public purse is given by area *acgn*. To reduce this burden, the government (whether the EU or US) could raise the domestic price to a level above the world market price, which would require the imposition of import duties or quota. (For some

commodities, import quotas are employed; this makes the analysis more complicated but does not change the general implications.). It is customary to raise the local price to $P_{Support,}$, however, this is strictly speaking not necessary, and to make this point clear, let us assume in Figure 11 that the local price is raised to P_A, By setting a higher price than the world market price in the domestic market, the surplus to be disposed of on international markets increases from $Q'_s - Q_d^w$ to $Q'_s - Q_A$, but the government saves an amount given by area *metn*. Since $P_A > P_{world}$, disposing the commodities on the international markets is now called dumping. The dumping subsidy amounts to area *esgt*, while area *kcse* constitutes an export subsidy.

Now consider the welfare effects of market price support. From the perspective of free trade without government intervention, consumers in rich-country domestic markets are worse off, losing consumer surplus equal to *mefn*, of which *mern* is simply a transfer to producers. Rich-country producers gain a surplus amounting to *acrn*. The cost to government amounts to *akem* + *kcgt*. The overall welfare loss to the rich country is given by the triangles *rcg* plus *eft*, where *rcg* is the welfare loss from using a system of support prices, and *eft* from raising the domestic price above the international price through import duties. The deadweight loss *rcg* is the result of inefficient allocation of resources in the production of agricultural commodities – the extra cost of producing goods domestically that could be produced cheaper offshore. The deadweight loss *eft* represents the loss to consumers from higher prices that is not also transferred to producers (as is area *etr*). Observe that the deadweight loss *eft* would be "small" if the elasticity of demand for the commodity would be "small" (the demand curve is "steep"). This situation applies if consumers have no readily available substitutes for the commodity, a condition that applies for various agricultural commodities, but not all.

The damage of market price support is not confined to developed countries, especially if

market price support is complemented by raising the local price, as is almost always the case in the EU and the US who operate the policy through import tariffs. As the country in Figure 11, the EU and the US would be importers of agricultural commodities without market price support, however currently they are exporters. This means that, first, LDCs lose the surplus associated with the loss of market access – the producer surplus plus differential rents associated with the goods that would be exported to the rich jurisdiction under unrestricted free trade, the amount $Q_d^w - Q_s^w$.[2] In fact, agricultural output in LDCs is now (partially) squeezed out by exports of rich countries. In addition, because the rich jurisdiction has gone from being a net importer to a net exporter and now 'dumps' $Q'_s - Q_A$ onto the international market, the world market price for the commodity falls (though we do not make this explicit in Figure 11). The upshot of these losses in surplus is that investment by LDCs in agriculture is reduced so that the agricultural sector does not offer the same ability to drive economic development.

Consider first a "type I" LDC that exported an agricultural commodity before a major expansion of agricultural support programs in rich countries, but became a net importer of that commodity thereafter. The situation is illustrated with the aid of Figure 12(a). The world price drops from P_{world} to P^N_{world} and this causes the country to become a net importer as indicated. It is easy to demonstrate that consumers gain surplus given by areas *B*+*E*+*G*, while producers lose surplus given by areas *B*+*E*+*F*. A comparison of consumer gains and producer losses indicates that the overall loss (or gain) is determined by area *F*–*G*. The extent to which *F* exceeds *G* determines how much the LDC will lose. Clearly, under the circumstance where *G*>*F*, the LDC will actually

[2] For a discussion of the difference between producer surplus (also known as quasi-rent) and differential (or Ricardian) rent, see van Kooten and Folmer van Kooten, G. Cornelis and Henk Folmer, *Land and Forest Economics,* (Cheltenham, UK: Edward Elgar, 2004). While quasi-rents accrue to human investments, differential rents constitute a pure surplus that can be used as a driver of economic development. This is not to suggest that producer surplus is not an economic driver; it is just not as potent as a resource rent, such as a differential rent.

benefit from the expansion of rich countries' support programs because the benefit to their consumers outweighs the loss to their producers. This hinges on the elasticities of demand and supply, which vary from one country to the next.

Now consider a "type II" LDC where the world price remains above the no trade price after farm support programs in rich countries. This situation is illustrated in Figure 12(b). Again type II country producers will lose and consumers will gain. Consumers gain area $\alpha+\beta$, but producers lose area $\alpha+\beta+\gamma$, with the country losing γ overall, as $\alpha+\beta$ constitutes a loss to producers that benefits consumers.

Direct Producer Subsidies

Producer subsidies form the remainder of the PSE. In as far as these subsidies are based on farm production, input, or income, they are distortional. In Figure 10 we encounter these distortional subsidies in the categories "Payments based on output", "Payments based on area planted/animal numbers", "Payments based on input use" and "Payments based on overall farming income", but we shall henceforth denote them by "production-based subsidies". Production-based subsidies form a sizable share of producer support in the EU and the US.

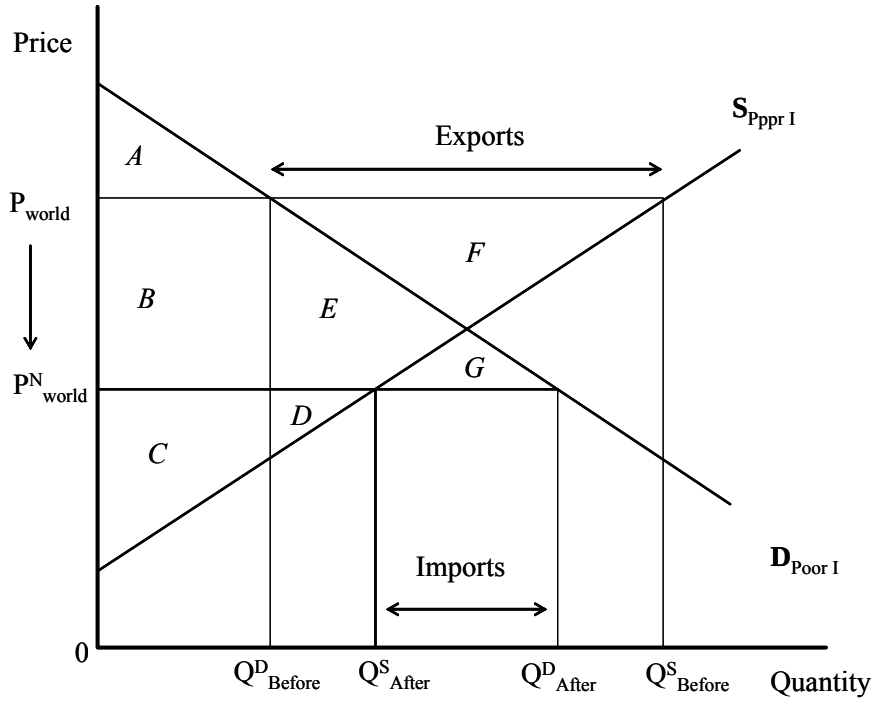

Fig. 12(a): Type I Country

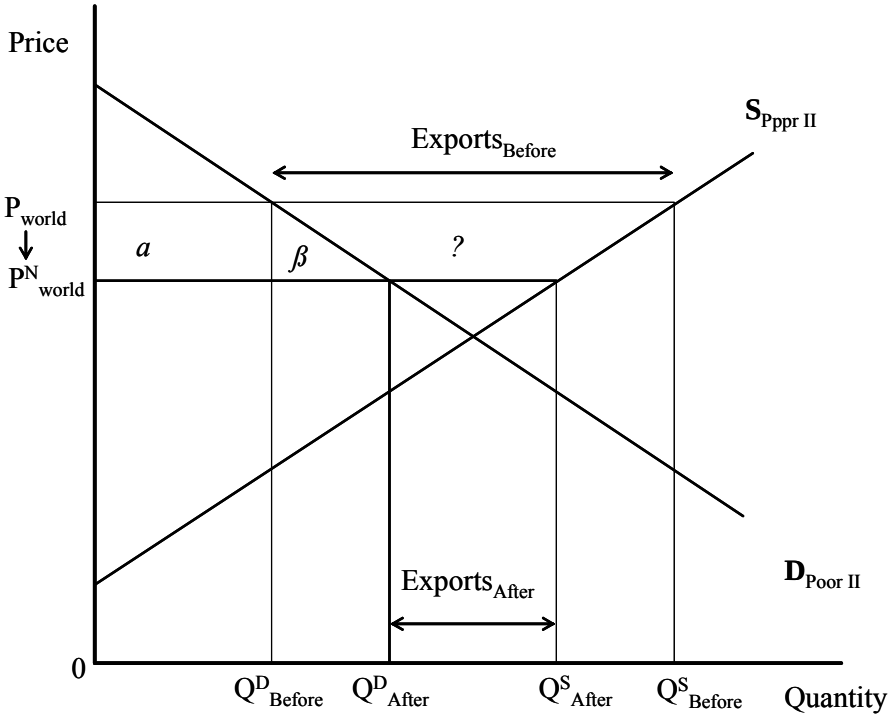

Fig. 12(b): Type II Country

Figure 12: Welfare Impact of Rich Countries' Support Programs on LDCs

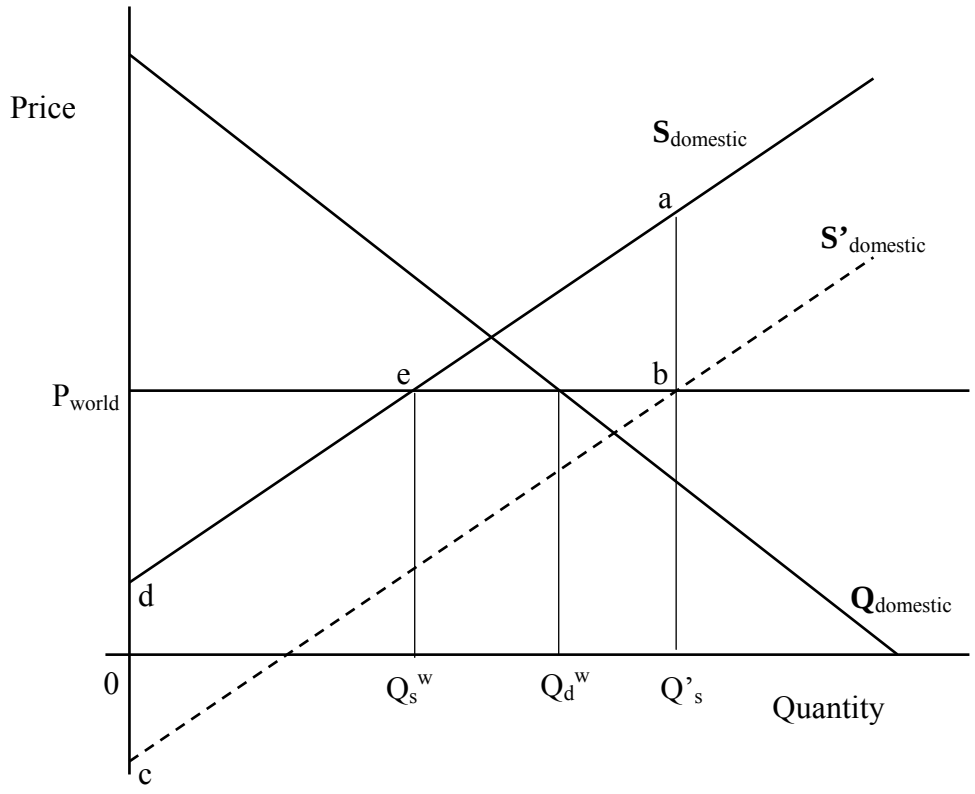

Figure 13: Rich Country Market: Production-based Producer Subsidies

Figure 13 clarifies what is the domestic impact of a production-based subsidy. As in Figure 11 we have assumed again that, under free trade, and no agricultural support payments, the rich constituency would be importing agricultural commodities, i.e. $Q_d^w - Q_s^w$ in the figure. A production-based subsidy shifts the supply curve out and boosts output to Q'_s. Since only the amount Q_d^w is consumed domestically the production subsidy turns the deficit $Q_d^w - Q_s^w$ into a surplus of $Q'_s - Q_d^w$. As before, this surplus is disposed on international markets, but in this case this is not to be called dumping – the internal price stays at the world market level – and no export subsidies are involved. In Figure 13 we assumed for simplicity there is no impact on the

world market price. In this case local consumers are unaffected and local producers benefit (their surplus increases by *bcde*). However, the government loses out by more than the producers win, namely it loses a surplus of *abcd* compared to the no subsidy case.

The impact of a production-based subsidy program on LDCs is qualitatively the same as the impact of market price support, because the rich country reduces its trade deficit and may transform from an importer into an exporter. Thus, as explained above, LDCs lose the surplus associated with the loss of market access, and, additionally face the consequences of a fall in the world market price for the commodity (see Figure 12 and its corresponding discussion).

Figure 10 reveals there are also direct producer subsidies which do not depend on current production levels, namely "payments based on historical entitlements", or depend negatively on output, namely "payments based on input constraints". In theory these support payments do not have an adverse effect on LDCs, or they may even have a beneficial effect. Indeed, the World Trade Organization, who also monitors agricultural support programs classifies almost all the payments that the OECD classifies as "payments based on input constraints" in the "green box", i.e. permitted payments because they do not (much) distort trade flows.

The Impact of Producer Support on Farmers in Less Developed Countries

We will now use the analysis above to classify agricultural support in the EU and the US based on their effect on farmers in LDCs. We will go beyond the discussion above and look into the break-up of "payments based on output", "payments based on area planted/ animal numbers", and "payments based on input use" as well, because not all of the subsidies found under these headers would qualify as "production-based producer subsidies" as defined above (see also Figure 13). Specifically, we classify producer support in the EU and the US as being "most harmful", "somewhat harmful" or "not harmful" to farmers in LDCs. This classification

corresponds by and large to the classification of the WTO of agricultural support payments into the "amber box", "blue box" and "green box", respectively. However, our classification differs at times and includes just PSE figures, and not those for the General Services Support Estimate (GSSE), some of which payments are included in WTO figures. We draw on OECD data for 2005. The most recent WTO data on the boxes would have been for the marketing year 2003-04.

Table 2 reports our results. In 2005 about a half of the producer support of both the EU and the US inflicted substantial harm to Farmers in LDCs. The US was a little worse than the EU in this respect, however the percentage of "somewhat harmful" support measures in the US was lower than in the EU. Thus, per euro (dollar) spent the producer support measures of the EU and the US were roughly equally harmful to LDCs. In 2005 the (negative) footprint of the EU agricultural policy was larger than that of the US agricultural policy, but this was purely because of the larger amount of producer support in the EU and not because of its composition.

Table 2: Impact on Farmers in LDCs of EU and US producer support in 2005

	2005 Producer Support Estimate (EU)		2005 Producer Support Estimate (US)	
	PSE amount (mln Euros)	Percentage of total	PSE amount (mln USD)	Percentage of total
Most harmful[a]	50,703	47	23,361	55
Somewhat harmful[b]	33,306	31	10,675	25
Not harmful[c]	23,634	22	8,633	20
Total	107,644	100	42,669	100

Source: calculations by authors based on OECD (2005);
[a] Market price support + Payments based on unlimited output + Payments based on unlimited area or animal numbers + Payments based on use of variable inputs + Payments based on overall farming income + Miscellaneous payments;
[b] Payments based on limited output + Payments based on limited area or animal numbers + Payments based on use of on-farm services + Payments based on use of fixed inputs;
[c] Payments based on historical entitlements + Payments based input constraints.

Beyond a Static Welfare Analysis of Producer Support

Agricultural support programs in rich countries also have adverse implications on LDCs that cannot be studied using Figure 12. First, the decrease in the surplus flow to the agricultural sectors of LDCs will generally mean lower (re)investment levels in agriculture since local capital markets are usually far from efficient. If investments in agriculture are in the interest of the country this hampers economic development. Secondly, and relatedly, displaced farmers in LDCs are 'freed up' to work in other sectors. However, transition costs are sometimes unusually high. Many of these displaced agricultural workers are skilled in little else and may be illiterate. They are in urgent need of finding alternative employment and many consider leaving rural villages to seek jobs in urban centers. The arrival of transient laborers in cities adds to strains on urban infrastructure, giving rise to shanty towns and exacerbating other negative externalities. Not all surplus workers find work in the city and others face a vicious cycle of depression. Governments in LDCs face real challenges in absorbing such displaced agricultural workers who face barriers in acquiring further human capital.

Beyond Producer Support

So far we have focused on producer support (PSE data). We have seen that producer support in the EU is substantially higher than in the US. However, comparing EU and US support programs purely in terms of producer support remains contentious, especially seen that consumer support (CSE data) and general services support (GSSE data) in these constituencies show substantial differences as well. For instance, the 2005 CSE of the EU came down to *minus* €42 billion, i.e. an implicit consumer tax that shows that EU consumers paid for more than a third of the cost of producer support in the EU-25 in that year (€108 billion). By contrast, the 2005 CSE for the US was *plus* $21 billion. While consumer support clearly does not directly impact the incentives of

local producers, there may be an indirect effect through higher prices. We have neglected the CSE because we estimate the effect of consumer subsidies on aggregate demand for agricultural commodities is marginal. Prices may matter substantially for the demand of individual agricultural commodities, but a lot less for aggregate demand. It is clear, however, that the effect of consumer subsidies on LDCs must run in the opposite direction of the effects of market price support and production-based producer subsidies.

Assessing the impact of general services support is potentially even more difficult because it is unclear to what extent such expenditures affects production incentives of local farmers. GSSE data include expenses on marketing and promotion, R&D support, as well as cheap crop insurance programs, which should all benefit producers. Thus, the effect of general services support on LDCs runs in the same direction as the effects of market price support and production-based producer subsidies, but it unclear what is the size of the effect. The GSSE of the EU-25 in 2005 came down to €10 billion, while that of the US was $36 billion. Wrapping up this discussion, we can conclude that in terms of general services support the US agricultural policy inflicted more harm on farmers in LDCs than the CAP of the EU, but that it is difficult to assess to what extent.

6. Moving Forward with Agricultural Reform

The previous section has made clear that protectionist agricultural support schemes in the US and the EU imply higher consumer prices in rich countries, continuation of inefficient production processes in rich countries, impediments to trade flows from LDCs, hindrance to improvements to the structure of the agriculture sectors of LDCs, and negative externalities in LDCs. Though farmers and exporters in LDCs are harmed, it is not always true that the LDC is worse off. As indicated in Figure 12, this depends on its unique situation (e.g., its supply and demand

elasticities). Ultimately, therefore, the impact of rich countries' agricultural policies on LDCs is an empirical question. In this section we first review the existing evidence regarding this matter. After this we discuss the recent 2003 CAP reform in the EU because its implications stretch well beyond the year 2005. This means that the data on which our results in previous section were based may reflect a dated EU agricultural support policy.

Liberalizing Agricultural Trade: Potential Benefits

"Agricultural trade policies remain by far the most costly of all market distortions in world trade" (Anderson 2003, p. 146). Various studies have examined the potential welfare gains from reforming agricultural policies. The World Bank (2002) estimated the gains to total some $248 billion, which exceeds estimates for liberalizing trade in manufactured products. According to Anderson et al. (2000), reform of agri-food policies in rich countries alone would bring about approximately half of global welfare gains from the elimination of all trade distortions. Brandão and Martin (1993) examined the impact of agricultural reforms on prices, production and welfare, and estimated that the annual gain to LDCs from global trade liberalization would be $60 billion. A more recent study by Brockmeier, Klepper, and Pelikan (2007) estimated the global welfare gains from EU agricultural reforms alone to be $70 billion (although exclusion of sensitive products would reduce gains to $50 billion).

Global trade volume is projected to expand by some 50% once developed countries lift their protectionist measures (Anderson 2004, 130-59). World prices of reformed agricultural commodities are generally expected to rise (OECD 2007), with Anderson (2004, 130-59) estimating a 5% overall increase in prices while Beghin et al. (2003, 39-58) estimate the increase to be 7%. Beghin and Aksoy (2003) provide estimates of expected price increases from liberalization for select agricultural commodities: 0-20% for cotton, 15-20% for groundnut, 20-

40% for sugar and dairy goods, and 90% for rice.

The impact of trade liberalization on individual LDCs can be expected to vary. As we have seen earlier, LDCs are hardly a homogenous group. Benefits that would likely arise for many LDCs include increased agricultural exports to rich countries. Some net food importers would be adversely affected by potential price increases, and may find it beneficial to re-orient toward exports. In addition, liberalization may have an adverse effect on income inequality in some LCDs. In general, however, the standard of living in LDCs can be expected to rise (Beghin, Ronald-Holst, and van der Mensbrugghe 2003, 39-58).

Dercon (1993, 157-194) illustrates the effect of stifling tariffs on exports originating from LDCs by estimating that cotton exports from Tanzania would have been 50% higher in the absence of export tariffs. In general, while agricultural exports by LDCs have grown in recent years, as shown in Figure 4, a clear dualism is emerging. From 1980 to 2001, the share of LDC exports of agricultural goods to other LDCs rose from 10% to 13%, but the share of their agricultural exports destined to developed countries declined from 26% to 23%. This pattern is not general to all merchandise trade as the share of LDC exports to rich countries of all manufactured goods jumped from 13% to 21% over the same period (Das 2005). Therefore, the data supports the notion that agricultural trade flows between LDCs and developed ones are restricted.

Work from a series of case studies conducted by the Food and Agriculture Organization (2002) also found that, while LDCs are increasingly seeking broader access to global markets in agricultural goods, they are hampered by substantial barriers in capturing gains from trade. One study concluded that Egypt intended to use its comparative advantage and focus on producing horticultural crops of high value once they had more access to the global market. However, since

the EU is the top destination for Egyptian agricultural goods, EU restrictions deter Egypt from making structural improvements in agriculture.

Finally, Table 3, which is borrowed from Brockmeier et al. (2007), gives an indication of what might happen if most of the current trade distorting elements of agricultural support programs are removed. Specifically, they study what would be the impact of the Falconer proposal of July 2007 which aims to break the deadlock in the Doha round of the WTO negotiations (WTO, 2007b). While their results support the notion that trade in agricultural commodities will increase significantly, they also indicate that some of the shibboleths that are generally held to be true may not stand up to further scrutiny. First, while it is hardly unexpected that rich countries would import more agricultural commodities, it is perhaps surprising that each of them (including those with supposed inefficient agricultural sectors) will export substantially more as well, especially to LDCs. Second, the LDCs that are expected to see the greatest export growth are China and India, but these are also the countries that will experience the greatest increase in imports of agricultural commodities. Third, the least-developed countries in the WTO appear to benefit remarkably little from reforms. It is less surprising that countries outside the WTO (ROW) generally do not benefit much either.

Table 3: Changes in Agricultural Trade Volume by Region (%)[a]

	Importer												
Exporter	EU27	US	Canada	Japan	Aus+NZ[b]	WTO IC[c]	China	India	Brazil	ACP[d]	WTO DC[e]	LDC[f]	ROW[g]
EU27	0.0	2.5	5.7	6.5	6.3	0.7	12.1	14.3	8.0	5.0	7.3	4.8	1.4
US	3.2	0.0	-0.1	9.0	3.9	28.2	12.2	9.7	10.0	4.7	3.4	4.8	1.6
Canada	3.3	0.0	0.0	17.1	5.1	5.0	13.8	9.4	7.1	6.5	3.9	5.8	3.7
Japan	5.9	-0.3	5.6	0.0	12.5	5.0	27.4	11.0	8.3	5.4	7.4	5.8	1.1
Aus+NZ[b]	4.9	2.4	34.4	12.1	1.3	5.1	9.5	58.0	6.9	7.3	1.7	3.9	-1.3
WTO IC	3.2	4.0	6.8	6.4	5.9	9.1	9.5	8.8	7.2	6.2	8.5	6.4	5.3
China	10.7	15.2	15.6	20.9	22.9	1.1	0.0	35.2	16.1	15.1	14.9	3.2	1.4
India	30.8	34.0	30.2	18.2	18.0	4.3	34.2	0.0	16.3	33.4	28.5	17.5	15.8
Brazil	32.6	5.0	5.8	0.9	6.3	6.2	6.8	-0.1	0.0	3.6	18.1	0.7	-5.4
ACP	5.6	6.1	0.9	2.9	11.9	-1.3	2.4	33.4	4.6	1.9	4.0	0.2	-0.7
WTO DC	4.1	3.4	6.0	4.3	6.1	12.6	17.6	14.5	9.5	6.9	5.8	4.9	1.9
LDC	-2.7	-1.8	1.6	2.0	5.8	6.7	6.3	3.2	6.8	7.9	8.2	2.1	1.5
ROW	1.0	0.0	4.4	3.0	4.0	0.9	-2.9	-2.5	4.8	4.5	-1.9	5.7	1.8

[a] In 2014 and according to the Falconer proposal, i.e. excluding sensitive products (benchmark is current policy situation including 2003 CAP reform, but excluding 2005 Farm Bill); [b] Australia and New Zealand; [c] Other industrialized WTO members: Switzerland, rest of EFTA, Albania, and Croatia; [d] Rest of Oceania and Caribbean, Botswana, South-Africa; [e] Other WTO members (developing countries); [f] *Least*-developed countries; [g] Rest of the World (Non WTO)
Source: (Brockmeier, Klepper, and Pelikan 2007)

Agricultural Reforms

Reform of existing agricultural policies is an important public policy issue and a normative stance is required if concrete policy is to be implemented. Given the costs of agricultural support programs, on what grounds can subsidization of agriculture be justified? One commonly advanced argument draws on the public good argument that domestic support of agriculture generates aesthetic views that society desires. However, government can support such environmental and other public good amenities through other means including conditional lump-sum transfers to farmers.

The other defense for agricultural protection is income support, especially those of low-income farmers. Although this degree of income support is not found in other sectors of the economy, farmers may simply have more political clout that causes income to be transferred in their direction, or society might feel that the farm lifestyle needs protection. Regardless, there are ways of transferring income to farmers without at the same time providing incentives to over produce, such as, again, lump sum transfers to farmers. These and other subsidy payments which are decoupled from output avoid over-production and also negative externalities associated with production-based payments, such as increased chemical use and loss of wetlands (see van Kooten, G. Cornelis and Folmer 2004, 533, pp. 376-324.).

The recent 2003 CAP reform forms an example of a change in the right direction in this context. The reform meant a change towards an agricultural policy with greater attention to the environment and rural development, while curbing the magnitude of distortional measures at the same time. The Single Farm Payment, a subsidy decoupled from agricultural production levels (or input use) was introduced. EU member states also agreed to lower the expenses for direct producer support by 3 percent of the CAP budget annually and earmark the funds freed up for

"rural development" – this was termed "modulation" (EC 1782/2003). Decoupling has traditionally been a more important feature of the US agriculture policy than in the EU. However, the 2005 US Farm Bill backed away from direct support, revisited the use of historical yields and backed away from decoupled programs because of the political infeasibility of providing payments to farmers without receiving something in return.

Because of the magnitude of producer support in the EU and the fact that the 2003 CAP reform has potentially substantial implications beyond 2005, the last year in the OECD dataset, we next analyse the likely implications of the CAP reform in terms of its consequences for LDCs. The 2003 CAP reform can be found back in the OECD data in 2005 in terms of its implied decrease in market price support (€57.5 billion in 2004 and €47 billion in 2005), as well as the steep increase in "payments based on historical entitlements" (i.e. the Single Farm Payment, €2 billion in 2004 and €17 billion in 2005).

What do we know about the impact of the 2003 CAP reform in the years following 2005? Our reference year will be 2013 as the EU's budget for agriculture and rural development has been fixed until then and European Communities (2007) provides expected production levels of agricultural commodities for it. We first address the anticipated change in market price support in the EU. OECD (2005) bases the 2005 market price support of €47 billion on a computed amount of €34.2 billion for 23 'standard commodities'. Of the €34.2 billion an amount of €27.5 billion stems from animal products, notably milk (€9.0 billion), beef (€8.7 billion), pigmeat (€4.3 billion), and poultry (€4.6 billion). However, the milk sector underwent a reform that will gradually reduce the farm-gate price. Based on EC 1788/2003 (milk reform) and production estimates in European Communities (2007) we have estimated the amount of market price support in the milk sector will reduce to €5.7 billion in 2013. Furthermore, based on the recent

cereal price increases, we anticipate that market price support in cereals will disappear completely in 2013 (was €4.0 billion in 2005). The sugar sector has also been reformed recently (EC 318/2006) and we anticipate this will lower market price support from €2.7 billion in 2005 to €0.8 billion in 2013. Absent any announcement of reforms we anticipate market price support in oil seeds (was €0), potatoes (was €0.60 billion), plants and flowers (was €0.44 billion), and tomatoes (was €0.49 billion) will grow with inflation (2 percent annually). Finally, there are no pending reforms of the beef, pig meat, poultry of sheep meat sectors, and meat prices have not changed drastically since 2005. Based on market price differentials that are assumed to grow with inflation and the production estimates in European Communities (2007), we have estimated market price support in beef, pig meat, poultry, and sheep meat will grow to €10.0 billion, €5.6 billion, €6.3 billion, and €1.1 billion, respectively, in 2013. Adding everything up we estimate market price support in 2013 to be €41.0 billion, or €35.0 billion in 2005 prices.

Now turn to direct support to farmers (i.e. expenditures under the EAGF) and rural development (i.e. EAFRD). The budget of DG Agriculture and Rural Development has been fixed to €51 billion (in 2004 prices) in the recent inter-institutional agreement. EC 410/2006 makes clear that in 2013 €39 billion of this amount will be spend on direct support, and €12 billion on rural development. Finally, based on member states' announced intentions, European Communities (2007) estimates that 91 percent of the direct support payments in 2013 are decoupled from production.

Where does this leave us in terms of the anticipated impact of the CAP on LDCs in 2013? Table 4 contrasts the impact of producer support in the EU in 2005 and 2013. As in Table 2 the PSE is classified into "most harmful", "somewhat harmful" or "not harmful" to farmers in LDCs. Table 4 makes clear that the 2003 CAP reform is a substantial step towards a less distortional

agricultural policy. EU producer support is expected to diminish by about 20 percent to €87.4 billion in 2013 (2005 prices), and our calculations also lead us to anticipate improvements in terms of the composition of the PSE. We expect a slightly lower percentage of producer support which is "most harmful" to farmers in LDCs in 2013 (i.e. market price support, or 'coupled' direct payments), and a substantially higher percentage of producer support which is "not harmful" to farmers in LDCs. In conclusion, it is clear that the 203 reform has been an important step in the right direction. However, the CAP will still have a substantial negative impact on LDCs in 2013 without any further reforms. The most substantial reduction of harmful support would be achievable by reducing market price support in the meat sectors.

Table 4: Analysis of the recent CAP reform in terms of consequences for LDCs

	EU PSE in 2005		Estimated EU PSE in 2013	
	PSE amount (mln 2005 Euros)	Percentage	PSE amount (mln 2005 Euros[d])	Percentage
Most harmful[a]	50,703	47	38,617	44
Somewhat harmful[b]	33,306	31	0	0
Not harmful[c]	23,634	22	48,753	56
Total	107,644	100	87,370	100

Sources: authors calculations based on OECD (2005), EC 318/2006 (reform sugar sector), EC 410/2006 (modulation), and European Communities (2006b, 2007)

[a] 2005 data from OECD (2005): Market price support + Payments based on unlimited output + Payments based on unlimited area or animal numbers + Payments based on use of variable inputs + Payments based on overall farming income + Miscellaneous payments; 2013 data: Estimated 2013 market price support + estimated "coupled" direct EAGF payments (9 percent of estimated 2013 EAGF budget of €39,977 million).

[b] 2005 data from OECD (2005): Payments based on limited output + Payments based on limited area or animal numbers + Payments based on use of on-farm services + Payments based on use of fixed inputs; 2013 data: estimated zero, though a small fraction of support classified as "not harmful" may affect production levels of EU producers.

[c] 2005 data from OECD (2005): Payments based on historical entitlements + Payments based input constraints; 2013 data: Estimated 2013 EAFRD budget of €12,374 million + estimated decoupled direct EAGF payments.

[d] Based on annual inflation rate of 2 percent, as in EC 410/2006.

7. Conclusions

Rich countries are committed to alleviating poverty in LDCs through pledges to boost foreign aid. While one could hardly object to foreign aid, developed countries simultaneously hamper economic development in LDCs through their agricultural support programs. Farmers many LDCs depend importantly on growing crops and tending livestock to make a living and LDCs rely heavily on exports of agricultural commodities for economic growth.

Among rich countries, the EU and the US are heavy-weights in providing substantial support to the domestic agricultural sector. A comprehensive comparison of support levels indicates that the level of agricultural support in the EU is much higher than in the US, but even a liberalization of agricultural policies in the US would have a noticeable positive impact on LDCs. The 2003 CAP reform in the EU will reduce producer support by 20 percent in the period 2006-2013 and will also lead to a less harmful policy mix for LDCs. Yet, EU market price support remains at a high level for meat and this harms producers in LDCs significantly.

Many countries other than those in the EU and the US provide varying levels of protection to agriculture, including Japan, Canada and Norway. What is surprising is the lack of progress in liberalizing agricultural programs given the enormous benefits it would imply to the citizens of the countries who would liberalize. One priority and challenge is to translate knowledge about the benefits of agricultural reform into action. For instance, it is important to get the basic message across that market price support is very costly to citizens, despite the fact that it is nearly budgetary neutral for governments of importing countries. A related and obvious challenge is to phase out the most distortional instruments, namely market price support or subsidies proportional to input use, output volume, or income of farms. Government could consider implementing more targeted policies directed at specific groups of producers, and, in case abolishing support altogether is not feasible, distortional measures could be exchanged for

direct producer payments based on historical yields, farm area, and the provision of certain environmental services (OECD 1994). A side benefit of such policies that involve direct payments to farmers is that they make it easy to inform citizens which producers receive support payments and thus highlight the re-distributive implications of the support payments (e.g. Fouilleux 2006).

With multilateral trade negotiations, "it is an easier way out, which does not mean that it is easy" (Das 2005, p. 145). Breaking the deadlock in future rounds of WTO multilateral trade negotiations requires understanding that obstacles have historically hampered the path to agricultural policy reform. One such obstacle has been the power of lobby groups who support agricultural policies. We can expect resistance to trade liberalization to be higher in the EU than the US, because, as we have seen, agriculture is more important in the EU in terms of the size and fraction of the labor force engaged in primary agriculture. This translates into more voters, thus, there is more is at stake for politicians in the EU than the US. Another obstacle to CAP reform has traditionally been fierce opposition by the French. France has been, and continues to be, a very influential member of the European Union.

We comprehend how difficult is the road ahead. But we know full well how greater the difficulty would be if we do not act. As the adage goes: "'getting prices right' is not the end of economic development, … but 'getting prices wrong' frequently is" (Timmer 1973, 57-76, p. 76).

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