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## Southern discomfort: Agricultural policies, trade and poverty

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**Sam Laird, Ralf Peters and David Vanzetti**

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**Centre for Research in Economic Development and International Trade,  
University of Nottingham**

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# **Southern Discomfort: Agricultural Policies, Trade and Poverty**

by

**Sam Laird, Ralf Peters and David Vanzetti**

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# **Southern Discomfort: Agricultural Policies, Trade and Poverty**

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## **Abstract**

Agricultural policies have important effects, positive and negative, on the poor, and the developing countries as a whole are expected to make important welfare gains from liberalization of agricultural trade and production. However, a quantitative assessment of the proposals in the current WTO negotiations, using the FAO/UNCTAD Agricultural Policy Simulation Model (ATPSM), shows that there are important re-distributive effects between producers and consumer in developed and developing countries. While consumers may gain in the developed countries producers may lose, and the reverse is the case in the developing countries. While this would be advantageous to the rural poor in the developing countries, the urban poor are likely to have to pay higher prices for basic foods. This suggests the need for assistance to facilitate translation, perhaps through donor operations.

## **Outline**

1. Introduction
2. Agricultural policies
3. Agriculture in WTO trade negotiations
4. The implications of proposals in the current WTO negotiations
5. Conclusions



## 1. INTRODUCTION

Agriculture is of critical importance for the livelihood of the poor: It is estimated that almost 1 billion people live on less than \$2 a day and 400 million on less than \$1 a day. (Shane and Roe, 2004). Most of the poor are in the rural areas of Sub-Saharan Africa and South Asia. Close to 30 per cent of GDP in low-income countries is generated in the agricultural sector, and the large majority of the workforce in developing countries is employed in the agricultural sector (Table 1).

**Table 1: Share of agriculture in GDP and employment, 1990-97 (%)**,

	<b>GDP</b>	<b>Employment</b>
Low-income countries	32	71
Middle-income countries	9	38
High-income countries	2	3

Source: World Development Indicators, The World Bank (2002)

The agricultural sector is also the most heavily distorted. It is estimated that developing countries could gain by more than \$45 billion annually in economic welfare from liberalization of the agricultural sector (Anderson, 2004). This derives from the removal of tariffs in developed and developing countries. However, tariff reforms cut both ways for developing countries. While some countries benefit from improved market access, other are concerned that their preferential access will be eroded as most-favoured nation (MFN) tariffs are reduced. Regarding reducing their own tariffs developing countries fear to weaken rural development and the food security.

Export subsidies and domestic support for agriculture in the developed countries have significant effects, positive and negative, on the poor in the developing countries. Most export subsidy expenditure is on temperate products grown in the European Union. Countries currently importing subsidised products are likely to face a higher food bill following the reduction or elimination of export subsidies, whereas producers and exporters competing with these products will become better off as a result of higher export prices. Furthermore, domestic



support measures and non-tariff barriers of trade such as TBT and SPS measures also reduce market opportunities for developing countries, as well as having negative effects on world prices for some of their key exports, e.g., cotton, sugar, etc.

Trade is the major means by which developed countries can influence poverty in poor countries. Improved access to developed country agricultural markets has the potential to lift agricultural producers in poor countries out of poverty.

### Trade and Poverty

The linkage between trade and the poor is not precise but several generalisations can be made. Trade generally stimulates growth and growth alleviates poverty. However, trade liberalisation generates winners and losers, and some of the losers may be poor or thrust into poverty. Poverty reduction requires sustained economic growth that increases average household incomes (UNCTAD 2004, p. ii). Sustained growth, in turn, requires capital accumulation and technological advances to increase productivity. Trade is likely to facilitate inflows of capital and technology. In most poor countries imports of food, fuel, manufactured goods, machinery and equipment and spare parts are necessary for sustained growth, and exports are necessary to pay for these needed imports. The agricultural sector is particularly important in many developing countries and where this is the case much of the exports must of necessity come from this sector.

Although the linkage between trade, growth and poverty may seem self-evident, there are numerous examples of countries with open trade that have not achieved sustained growth. Many things can go awry, particularly in the absence of physical, social and institutional capital. Transport linkages may be absent, education or health levels too low or property rights not enforced. Supply side constraints such as these may limit the ability of countries to take advantage of enhanced market access opportunities.

More specifically, the linkages between trade and poverty are through the commodity and factor markets. Increases in prices of commodities sold by the poor reduce poverty, as does an increase in the demand for factors (land, labour and, to a lesser extent, capital). As many of the poor live in tropical areas, they tend to produce tropical agricultural products, such as coffee,

cocoa, sugar, rice, tobacco, vegetable oils and livestock. Thus improving market conditions for these products is likely to benefit such producers more than proportionately. However, the urban poor are likely to be consumers of these products. In the factor markets the poor sell mainly unskilled labour, and increases in prices of products that use this factor intensively are likely to be poverty reducing.

While trade is important for sustained growth, trade liberalisation may affect the poor either positively or negatively, depending on the changes in world prices, the transmission of these price changes to domestic markets, and the composition of products and factors sold by various group. Although the global gains are likely to be positive, the presence of existing distortions does not guarantee this, and since the distribution of gains across countries is not even, some may lose. Certainly, many individuals will be worse off through changes in relative prices, and, although the winners could conceivably compensate the losers, they are unlikely to do so.

The poorest of the poor tend to live in rural communities, being dependent directly or indirectly on farm incomes. Household survey information that would provide details of this pattern is weak although efforts are now being made in a number of international organisations to collect this information. This will provide a clearer picture of the patterns of poverty and permit better-targeted policies to alleviate it.

## **2. AGRICULTURAL POLICIES**

Agricultural policy is of great significance to the developing countries. Since so many of the rural poor are dependent on agriculture for their livelihood and the urban poor spend much of their incomes on food, the poor are highly vulnerable to changes in the domestic prices of agricultural commodities, especially food.

In developing countries, there has often been a policy bias against agriculture. It used to be thought that agriculture could make a positive contribution to economic development not only through productivity gains in agriculture that frees up labour for industry or through savings generated by agriculture that can be invested elsewhere, but also by a deliberate policy of transferring resources from agriculture to other sectors, ordinarily through discriminatory policy

treatment, including implicit and explicit taxation of

agriculture. These policies are now being modified in recognition of the need to mitigate the negative effects on the poor.

By contrast, in a number of developed countries, large parts of the agricultural sector have been assisted with direct and indirect import barriers as well as production and export subsidies. This is for a number of reasons, most notably because of the political power of farm lobbies to attract financial support (e.g., the European Union (EU), the United States (US) and Japan). However, there are also historical food security considerations, e.g. in the EU. Today, food security as a reason for support for agriculture applies mainly in developing countries, although it is sometimes argued that cash crops may provide higher incomes with which to purchase food imports, leaving a disposable surplus for other development needs.

Whatever the source of intervention in the agricultural sector, various countries take the view that the sector cannot be completely exposed to unbridled international competition without causing social and economic disruption. (Environmental and other non-trade concerns have more recently been added to the list of objectives of agricultural policy intervention). Agricultural trade policy has become an instrument aimed at redistributing income to the rural sector, not only in the EU and Japan, but also in major agricultural exporting countries such as Canada where the dairy and poultry sectors benefit from substantial transfers<sup>1</sup>.

A consequence of the domestic support policies has been the generation of substantial surpluses, beyond domestic needs, and export subsidies by developed countries and the EU in particular, have been used to dispose of surpluses on international markets, driving down international prices and contributing to the increased instability of prices. These programmes of domestic support and export subsidies also have negative consequences for the home country through soaring budgetary costs, while foreign producers have been squeezed and foreign food importers have benefited.

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<sup>1</sup> The extent of distortions in the agricultural sector has been documented and even quantified in studies by the OECD, UNCTAD, the World Bank, the United States Department of Agriculture's Economic Research Service, the Australian Bureau of Agriculture and Resource Economics and many independent researchers.

A large number of instruments and institutions have been established to pursue these diverse and sometimes-conflicting policy goals. OECD (2002) lists some 150 measures or bodies administering country-specific schemes. These include most importantly import tariffs, tariff quotas (sometimes called tariff rate quotas or TRQs), domestic supports (a large number of measures), and export subsidies (which also includes export credits with a subsidy component, e.g., through the application of non-market rates of interest, and state trading enterprises). Other instruments or institutions operating in the agricultural sector include technical barriers to trade (TBT measures, which also affect labelling in agriculture), sanitary and phytosanitary (SPS) measures, state trading, price controls, and so on.

In addition to specific policy instruments, large corporations sometimes dominate trade and production in agriculture and these may constitute market entry barriers. The operation of these corporations often make it difficult for small operators, particularly in developing countries, to market their exports for a reasonable return. It is also argued that the dominant position of large firms in some areas of marketing, e.g., US maize, gives them tremendous market power to keep producer and export prices low, forcing farmers in import-competing countries such as Mexico to reduce prices in order to compete (Wise, 2004).

### **3. AGRICULTURE IN WTO TRADE NEGOTIATIONS**

Overall, the large range of interventionist policies affecting agriculture, particularly in OECD countries, derives largely from the fact that, in the past, the agricultural sector on the whole escaped from GATT disciplines whether by neglect or explicit exclusion by waivers or under terms of accession, including general and country-specific derogations. For example, agriculture was exempt from the general prohibition on the use of export subsidies, unless this would result in the exporter gaining an "inequitable" market share (Article XVI:3 of GATT). Import restrictions were also allowed under Article XI:2(c) if domestic production was also subject to quantitative restrictions - the rationale for Canada's supply management programmes. The United States, under a special waiver, and Switzerland, under its Protocol of Accession, also

gained freedom to impose quantitative restrictions on imports. State-trading enterprises effectively operated to restrain imports, an option which was especially important in Japan. The EU became the major user of variable levies whose legality, while questioned, was never successfully challenged.

A consequence of this neglect of agriculture in the previous GATT rounds of multilateral trade negotiations was that, broadly speaking, tariffs and other measures remained much higher than manufactures (Table 2). Moreover, mainly because developing countries had little negotiating leverage, items of export interest to them tended to be left out of the negotiations or subject to lesser reductions, leaving a bias against their exports (Table 2). Agricultural tariffs also had a much greater share of specific, mixed or alternate rates and variable levies were common, whereas in manufactures ad valorem tariffs were, with certain exceptions, the norm. Domestic support measures were widespread, and export subsidies were permitted under the GATT and the Tokyo Round Subsidies Code (under the conditions indicated therein). It has been estimated that transfers in the sectors were approximately \$US 318 billion in the OECD countries in 2002, more than half the farm gate value of production (OECD, 2003).

**Table 2: Bound and applied tariffs on agricultural products, 2001 (ad valorem equivalents in per cent)**

		<b>Bound</b>	<b>Applied</b>
Agriculture	High-income countries	51	48
	Middle-income countries	57	20
	Low-income countries	79	17
Non-Agriculture	High-income countries	4	3
	Low & Middle-income countries	20	13

Source: UNCTAD ATPSM Database and TRAINS, Note: Agricultural tariffs are simple averages of out-of-quota ad valorem equivalents, no preferences have been taken into account.

### **a) The WTO Agreement**

It was principally the concern about the effects of industrial countries' agricultural policies that motivated the Uruguay Round negotiations in the sector. These policies had become the source of considerable trade tensions, especially over export subsidies. Thus, in the Punta del Este

Declaration that launched the Round it was stated, inter alia, that "negotiations shall aim to achieve greater liberalization of trade in agriculture and bring all measures affecting import access and export competition under strengthened and more operationally effective GATT rules and disciplines". Competition was to be improved by "increasing discipline on the use of direct and indirect subsidies and other measures affecting directly or indirectly agricultural trade".

The WTO Agreement on Agriculture, concluded as part of the Uruguay Round, was intended to bring the agriculture sector under more operationally effective rules and to pave the way for future liberalisation in new negotiations that were effectively launched in Doha. Apart from extensive new rule making, new commitments were made in the areas of market access, domestic support and export subsidies. The main commitments were as follows:

- Non-tariff measures against imports had to be converted to tariffs ("tariffed") and were subject to simple average reductions of 36 per cent for developed countries over six years and 24 per cent for developing countries over 10 years. The minimum reduction for specific tariff lines was 15 per cent for developed countries and 10 per cent for developing countries.
- The overall incidence of domestic supports (the Aggregate Measure of Support', or AMS) was computed and subject to reduction of 20 per cent, with the exception of "green box" subsidies: production-limiting programmes; de-linked income support; programmes related to structural adjustment, income insurance and safety nets; regional assistance; environmental payments; domestic food aid; and general services. Partially de-linked measures ("Blue Box") were allowed. Since the reductions commitments referred to the aggregate, it is possible to increase expenditure in some areas while they are being used less in other areas.
- And export subsidies were to be eliminated or notified and then reduced. Budgetary expenditures on export subsidies were to be reduced by 36 per cent for developed countries and 24 per cent for developing countries over six years, while quantities exported with subsidies were to be reduced by 21 per cent for developing countries and 14 per cent for developed countries. Since subsidies may not be needed when world prices are high, their use may fall in some years and then increase again when world prices fall, provided they are within the overall reductions commitment.

These reductions were largely ineffective in reducing global agricultural support, still around record levels, because of inherent flexibility built into the Agreement, such as the ability to switch support from one commodity to another. Market access, domestic supports and export subsidies are again the three main pillars of the post-Doha agricultural negotiations, which are proving to be as difficult as those in the Uruguay Round.

### **b) The Doha negotiations**

In the current WTO negotiations, considerable progress has been made in clarifying the issues. Discussions have largely focussed on proposals by the Chairman of the Agriculture Negotiating Group (Mr Harbinson), which was an attempt to find a compromise between more conservative proposals by the EC and more ambitious proposals by the US and the Cairns Group of agricultural exporters. Since negotiators could not agree on modalities for commitments, a framework for modalities was presented to the WTO Ministerial meeting at Cancún in late 2003. Predictably, developed Cairns Group members want to see a less flexible and more ambitious round, whereas countries including Japan, Norway and Switzerland want more flexibility, particularly in the areas of non-trade concerns, and less ambition. Most developing countries want the developed countries to liberalise, but, at this stage, for reasons of perceived rural development needs and food security, are reluctant to open their own markets in short measure at this time.)

The negotiations are again centred on the three pillars: market access; export subsidies and domestic support. These are not independent. For example, export subsidies are only useful if tariffs or domestic support is contributing to overproduction that needs to be disposed of on the world market. Reducing either of the latter two instruments removes the need for exports subsidies. In turn, export subsidies require an import barrier to prevent the re-importation of subsidised exports. Nonetheless, the whole pack of cards does not collapse with the removal of one instrument. Producers can be supported by tariffs, domestic support or some combination of these. Reductions in tariffs and export subsidies can be compensated by increases in domestic support. This has happened in recent years in both the United States and the

European Union as WTO has set constraints on the use of border protection. Domestic support is nominally less distorting than tariffs and export subsidies because consumer prices are not directly inflated. Domestic support that is decoupled from output can maintain farm incomes without encouraging overproduction. In practice, the partial switch from border measures to domestic support has not led to a decrease in production in highly protected sectors such as EU cereals. This reflects how support is administered. If producers feel that they have to continue producing to retain their entitlements to support in the future, as may be the case if the base period is updated, the support arrangements merely lock in rather than remove distortions. Negotiators in the current round are anxious to address all three areas, which are now discussed in more detail.

### **c) Market access**

Although the Uruguay Round was a first step towards a more liberalised agricultural market, tariffs on agricultural products are still significant. In high-income countries bound rates are about 37 per cent (Table 2). Bound rates in middle- and low-income countries are even higher but applied rates are significantly below bound rates, providing a binding "overhang" that implies that moderate negotiated reductions in tariffs will not affect applied rates. Additional difficulties for developing countries are tariff escalation and tariff peaks. Furthermore, non-tariff barriers are becoming more and more important leading to a significant market entry problem for developing countries even if they benefit from preferential access. In general, tariffs are higher on temperate products than on tropical products. However, tariffs on some products of specific interest to developing countries are also significant. These tend to be products for which temperate and tropical products are substitutes, such as sugar, oilseeds and rice. When trade flows are taken into account, tobacco and cotton are among the most distorted markets adversely affecting developing countries (Table 3).



**Table 3: Tariff protection by commodity groups measured by tariff revenue, 2001 (\$ mill.)**

<b>Commodity Group</b>	<b>Tariff Revenue US\$m</b>
Oilseeds	7'123
Tobacco and Cotton	6'839
Meat	6'400
Cereals	5'760
Dairy Products	2'601
Fruit	2'542
Beverages	2'449
Sugar	1'853
Vegetables	655

Source: UNCTAD, ATPSM

The early US proposal for addressing market access issues was to reduce applied tariffs according to a harmonising Swiss formula by which higher tariffs are reduced more than proportionately, effectively attacking tariff peaks. Under this formula the maximum final tariff is proposed to be 25 per cent<sup>2</sup>. This implies, for example, that a tariff of 100 per cent would be reduced by 80 per cent while an initial tariff of 10 per cent would be reduced by about 30 per cent. Other elements of the proposal include elimination of in-quota tariffs and a 20 per cent expansion of import quotas. As countries with the same initial rates are treated similarly, the approach does not recognise special and differentiated treatment for developing countries, as foreshadowed by the Doha Declaration, and developing countries would have been obliged to make proportionally greater cuts from their bound rates than developed countries.

Tariff peaks and escalation are not specifically mentioned in the initial proposal by the European Commission (EC), which is a continuation of the Uruguay Round approach, a 36 per cent average cut in bound tariffs with a minimum 15 per cent cut in each tariff line. The EC proposal

mentioned, but did not give details of, the special and differentiated conditions that might apply to developing countries. However, in a recent statement, the EC Commissioner, Pascal Lamy, has suggested permitting the G90 countries (African Union, LDC and ACP) to avoid making reduction commitments, a proposal that is likely to split developing countries attitudes to further reform.

The Harbinson Proposal is a compromise between the harmonising and the flexible approach. Out-of-quota bound tariffs would be reduced by a simple average for all agriculture products, subject to a minimum reduction per tariff line. The formula includes bands where, depending on the initial tariff, average and minimum reductions are higher for higher tariffs. For developed countries the proposed average reduction is between 40 and 60 per cent and the minimum between 25 and 45 per cent. For developing countries the reductions are between 25 and 45 per cent with a minimum between 15 and 30 per cent. Tariff quota quantities would be expanded to 10 per cent of current domestic consumption in developed and 6.6 per cent in developing countries. Least-developed countries would not be required to undertake any reduction commitments.

The EC-US joint proposal is to apply the Uruguay Round approach to a certain, as yet unspecified, share of tariff lines, the Swiss formula to a further share of tariff lines, and provide duty-free access to the remainder. The first group would most likely include the more sensitive products. Furthermore, a maximum tariff or an equivalent additional market access is proposed. Developed countries would provide duty-free access for a certain percentage of imports from developing countries. Concerning special and differential treatment, the proposal is that developing countries may reduce tariffs by a smaller amount.

The draft Cancún Ministerial Text, second revision, put forward by the General Council of the WTO adopted the EC-US blended formula. No maximum tariff is proposed for developing countries (although it would remain under negotiation) and the duty-free part of the blended formula is replaced by the alternatives to reduce tariffs to zero or five per cent. Tariff reductions are to be lower and implementation periods longer in developing countries.

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2 The proposed Swiss formula is  $final\ tariff = (initial\ tariff * 25) / (initial\ tariff + 25)$

Both the Harbinson and the draft Cancún Text foresee "Special Products" for developing countries. Harbinson proposed to reduce the corresponding tariff lines by an average of ten and a minimum of five per cent. The creation of a category of Special Products is a

major demand by developing countries including the so-called group of 33 countries that want these products, yet to be identified, to be exempt from any reductions.

The draft Cancún text calls for developed countries to accept duty-free all imports from least developing countries and a certain percentage of imports from developing countries. The EC had already proposed to provide duty-free access for 50 per cent of all imports from developing countries and 100 per cent for least-developed countries. Thus, the European Union itself substantially meets this criterion. Among the major importers Japan would have the most difficulty meeting this standard, as only a quarter of its agricultural imports from developing countries are duty-free.

#### **d) Export subsidies**

Export subsidies are sometimes considered to be potentially one of the most distorting forms of intervention, although their impact depends on the existence of other instruments such as tariffs, domestic support and production quotas, and prevailing world prices.

The budgetary outlay constraint for all 25 subsidizing countries was almost \$11 billion in 2000. The level of export subsidies actually provided depends on production, exchange rates and world food prices and therefore fluctuates. Subsidies are counter-cyclical, expanding when world prices fall and vice versa. During the period 1995 to 2000 on average \$6.2 billion were spent on export subsidies by WTO members. The European Union, Switzerland, Norway and the USA are the countries with the highest export subsidies, accounting for more than 96 per cent of all outlays (see Table 4). The European Union is by far the biggest user of export subsidies accounting for almost 90 per cent of the expenditures. On average the EU spent \$5.5 billion each year between 1995 and 2000. However, the latest available data for the EU show a distinct decline in its use of export subsidies. In the marketing years 2000/01 and 2001/02

budgetary outlays declined to \$2.5 and \$2.3 billion, respectively.

**Table 4: Use of Export Subsidies: Averages from 1995 to 2000 by country**

	Average 1995-2000			Average 1995-2000	
	US\$m	%		US\$m	%
EU	5'503.4	88.7	Israel	6.6	0.1
Switzerland	311.5	5.0	Mexico	3.8	0.1
Norway	85.7	1.4	Cyprus	2.9	0.0
USA	83.6	1.3	Australia	0.6	0.0
Canada*	54.5	0.9	Iceland	0.0	0.0
Czech Republic	37.1	0.6	New Zealand	0.0	0.0
Turkey	28.4	0.5	Romania	0.0	0.0
Poland	21.7	0.3	Bulgaria	0	0
South Africa	18.6	0.3	Brazil	0	0
Hungary	16.9	0.3	Indonesia	0	0
Colombia	12.8	0.2	Panama	0	0
Slovak Republic	10.8	0.2	Uruguay	0	0
Venezuela	7.8	0.1			
			Total	6'206.7	100

Source: Peters (2004). UNCTAD calculation based on WTO notifications.

Since most of the export subsidies are provided by developed countries from the northern hemisphere, the bulk of subsidies are on temperate products. Almost 35 per cent is on dairy products and 23 per cent is on meat. Producers of cereals, incorporated products and sugar also receive a considerable amount. Beef, which is of interest to some developing countries, makes up almost 60 per cent of all meat subsidies.

Of the current 148 WTO members, 25 countries have export subsidy commitments, volume and budgetary outlay constraints, for various groups of products. As almost 90 per cent of all agricultural export subsidies are provided by the European Union, it is, perhaps not surprising that the United States proposes to eliminate export subsidies over five years whereas the European Commission suggests a modest reduction of an average 45 per cent in expenditure. As with tariff cuts, the idea of reducing the average provides flexibility by permitting large cuts in

lightly traded or lightly protected products while making minimal or no reductions on other products, as long as the average cut is met.

Between 1995 and 2000 the EU's average subsidies were \$5.5 billion, only 20 per cent lower than its final bound expenditure level of \$6.8 billion. But in 2000 and 2001, outlays decreased to \$2.5 and \$2.3 billion, respectively, and could therefore accommodate a reduction of more than 60 per cent in the total expenditure. However, several individual commodities are currently up against expenditure or volume constraints, including rice, sugar, cheese and other milk products, poultry, fresh fruits and vegetables and incorporated products.

The United States proposes, in addition to the elimination of export subsidies, that disciplines would be placed on officially supported export credits, food aid and other forms of export support without specifying quantitative limits. Globally, most export credits are provided by the US to their farmers. The EC proposes that the trade-distorting elements of export credits for agricultural products should be identified and subjected to strict disciplines.

The Harbinson Proposal involves eliminating export subsidies in both developed and developing countries, although the latter would have a longer implementation period. Export credits would be subject to disciplines.

In their joint paper, the European Commission (EC) and the US propose to eliminate export subsidies for as yet unspecified products that are of particular interest to developing countries, and to reduce export subsidies for the remaining products. Trade-distorting elements of export credits should be treated in the same manner as export subsidies.

In the draft Cancún text, the WTO General Council adopted the EC-US approach with a view to eventually phasing out all export subsidies and trade-distorting elements of export credits<sup>3</sup>. Most developing countries, including the Group of 22, are seeking the elimination of all forms of export subsidies as an outcome in the current negotiations. The failure to meet the objective in the draft Cancún text was one of the major concerns of developing countries.

In May 2004 the EU Commissioners Mr. Lamy and Mr. Fischler sent a letter to WTO members in which they indicate that the EU would be ready to eliminate all export subsidies if other countries which also support exports such as the US with its export credits or countries with state trading enterprises do the same (“parallelism”), an acceptable outcome emerges on market access and domestic support, and if EU’s non-trade concerns are taken into account. The proposal was welcomed but it is also extremely conditional since, for example, the definition of what constitutes an export subsidy by others is broad.

### **e) Domestic Support**

Support to agricultural production is still significant despite the Uruguay Round negotiations. Total support to agriculture in the OECD amounted to \$323 billion in 2002, against total agricultural production of \$632 billion valued at the farm gate (OECD, 2002). However, these figures are based on the Producer Support Estimate (PSE) of all forms of intervention of benefit to producers – tariffs, export subsidies, etc. – that cause a gap between domestic and world prices. This does not correspond to the much narrower definition, dealing only with domestic subsidies, as defined in the WTO negotiations on the issue of domestic support in agriculture.

In absolute terms, most of the support, as measured by OECD, is provided to producers of milk, meat, sugar and grains in the United States (\$95 billion in 1999-2001), the European Union (\$113 billion) and Japan (\$65 billion) (de Gorter, Ingco and Ignacio, 2004). Support is provided in various forms. Border protection (tariffs and export subsidies) in the OECD accounted for \$160 billion in transfers to producers in 1999-2001. Domestic support payments in the OECD in 1999-2001 amounted to \$88 billion and included payments based on input and output use (\$36.6 billion), area and headage payments (\$29.1 billion), historical entitlements (\$13.2 billion) and other payments (\$9.3 billion). The remaining \$80 billion or so in support includes general services and is generally considered non-distorting.

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3 Agreed disciplines on export credits would address appropriate provisions for differential treatment in favour of

The various domestic support payments differ in their affect on production, with the most distorting payments being those based on input use and output prices. To account for this, in the WTO Agreement on Agriculture, payments were further divided into Amber (permitted, but subject to reduction), Blue (partially de-linked from production) and Green boxes (not linked to production, e.g. developmental, regional, environmental support, etc.) according to their apparent level of distortion. In the OECD, 38, 12 and 46 per cent of domestic support was allocated to these boxes, respectively (op.cit., p.126). The remainder includes *de minimis* and other exempt categories.

Since reduction commitments vary across boxes it is tempting to reclassify Amber box support as Green Box. Support subject to reduction commitments (i.e. Amber box) is measured by the AMS. The AMS is not an accurate measure of current domestic support as in addition to direct subsidies it includes support generated by the gap between administered domestic prices (such as EU intervention prices) and base period (19986-88) world reference prices. Furthermore, any support not exceeding 5 per cent of production is excluded. As the name suggests, this measure aggregates across all commodities, so in any given year excessive expenditure on any one commodity could be offset by reductions in other areas, making the reduction commitments much less stringent.

Thus, the flexibility inherent in the administration of domestic support reduction commitments implies that in many cases the commitments are not binding or can be avoided<sup>4</sup>.

While developed countries are switching into domestic support, most developing countries cannot afford and do not grant substantial domestic support, and since they declared this situation at the end of the Uruguay Round, they do not have the option of introducing such support beyond minimal amounts (*de minimis*) of 10 per cent of production.

Domestic support measures in developed countries appear to increase global production, forcing down world prices. This benefits consumers in net food importing in developing

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least-developed and net foot-importing developing countries.

countries at the expense of net exporters. Since producers in both groups of countries face lower prices as a result of domestic support in developed countries, most developing countries are demanding the reduction of domestic support.

The US proposal for domestic support reductions is to reduce over five years the non-exempt support as defined by the Aggregate Measurement of Support (AMS) (Amber box) as well as production-limited (Blue Box) support to at most 5 per cent of the average value of agricultural production. By some later date, all non-exempt domestic support would be eliminated. *De minimis* payments, i.e. support not exceeding five per cent of the total value of production, would be excluded from reductions and subsequent elimination. Developing countries would have special conditions to enable them to provide additional support to facilitate development and food security.

The EC proposal involves maintaining the Amber, blue and green boxes essentially unchanged and reducing the Amber Box Aggregate Measurement of Support by 55 per cent. The Green Box criteria would be expanded to encompass so-called 'non-trade concerns' such as rural development, the environment and animal welfare. This is in contrast to the US proposal whereupon the Green Box criteria would not be expanded. At present the EU's AMS expenditure is not a binding constraint, but could become so in the future, depending on movements in world prices. A flexible Green Box allows support to be switched from the non-exempt Amber to the exempt Green Box, as decided in June 2003 by the EC in the reform of its Common Agricultural Policy (CAP) by increasing direct income support. Finally, the EC proposes eliminating the *de minimis* provision in developed countries.

The Harbinson (Chairman of the Agricultural Negotiating Group) proposal on domestic support is to maintain Green Box support measures unchanged and to reduce Blue Box payments by 50 per cent in developed and 33 per cent in developing countries. The Amber box Aggregate Measurement of Support would be reduced by 60 per cent in

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4 The potential for double counting and the inherent flexibility in current domestic support reduction commitments has led UNCTAD to take a conservative view of domestic support, and relatively little production distorting support expenditure is included in the initial database.



developed and 40 per cent in developing countries. The *de minimis* level of 5 per cent would be reduced to 2.5 per cent in developed and would remain unchanged at ten per cent in developing countries.

The EC-US joint proposal also envisages leaving Green Box support measures unchanged but broadening and weakening the definition of direct Blue Box payments. These “new Blue Box” payments would have to fulfil several requirements but would no longer have to be production-limiting. Under the proposal they would not exceed 5 per cent of the total value of agriculture production. The “most trade-distorting domestic support” and *de minimis* payments would be reduced in a certain range, with countries having the higher trade-distorting support making greater effort. The sum of Amber and “new Blue” Box and *de minimis* support would be capped at the sum of the Amber and Blue Box and *de minimis* support level in 2004.

The draft Cancún text adopted the EC-US proposal to modify and expand the Blue Box but required a linear cut of the corresponding payments. Green Box payments would remain under negotiation, which probably means that there would not be any changes in the next few years. As in the EC-US proposal, Amber Box and *de minimis* payments would be reduced within a certain range.

#### **f) Towards a Development Box?**

A large part of the current negotiations is focused on the degree of differential treatment. There are narrow and broad notions of a Development Box. The narrow notion is a box of measures that would be added to the green box and comprises various special provisions for developing countries in addressing food security, rural poverty, etc. The wider notion of a development box describes all concepts addressing the specific problems of developing countries such as hunger and poverty in food-insecure, low-income regions. Developing countries submitted various proposals aimed at protecting and enhancing their food production capacity, particularly in key staples, safeguarding employment opportunities for the rural poor, and protecting small farmers

from cheap imports<sup>5</sup>. The most prominent mechanisms in a potential development box that are discussed in the negotiations on agriculture include:

- Lower reduction commitments concerning tariffs and domestic support measures such as “*de minimis*” payments.
- Longer implementation periods.
- Expanded government measures of assistance like domestic support to encourage agricultural and rural development (Article 6.2, Agreement on Agriculture).
- Expanded access to green box exempt measures.
- Different formulas for tariff reductions.
- Expanded tariff-rate quotas administered by developed countries.
- Special Products (SP).
- Special Agricultural Safeguard Mechanisms (SSM).
- Preferential access to developed country markets.
- Special provisions for least-developed countries and net-food-importing developing countries.

Under the Special Product provisions, a limited number of sensitive products would be exempt from reduction commitments, so as to enable developing countries to take account of their food security, rural development and livelihood security concerns. The selection of the products turns out to be controversial in the negotiations because the additional flexibility waters down the level of ambition and threatens the growth in South-South trade. The intention with this provision is not to protect against temporary price shocks or import surges. For this purpose the Special Agricultural Safeguard Mechanism provides a time-limited safeguard against imports when they threaten to disrupt domestic production, to be invoked only in exceptional market conditions. It was debated whether the mechanism should be restricted to a limited number of food security crops like cereals or broadened to include particular crops important for the livelihood of many poor people in developing countries. The potential criteria to be used in the identification of eligible products could be based on numerous factors, each favouring some countries at the expense of others. Agreement on suitable criteria has yet to be worked out.

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5 Informal paper from Cuba, Dominican Republic, El Salvador, Honduras, Kenya, Nigeria, Pakistan, Sri Lanka and

### **g) Non-trade concerns**

The agriculture negotiations provide scope for governments to pursue “non-trade” concerns such as the environment, rural development, labour standard and food security. However, not all countries are ready to negotiate these “non-trade” issues, as exporters tend to perceive these as providing alternative means of protecting import markets.

The European Commission proposes that measures aimed at achieving certain societal goals such as the protection of the environment, traditional landscapes, rural development and animal welfare should be accommodated in the agreement on Agriculture. For example, payments to compensate for the additional cost of meeting higher animal welfare standards would be exempt from reduction commitments under the proposal. Other non-trade concerns include geographical indicators, such as 'Champagne', and restrictions on imports of genetically modified organisms. The Harbinson Proposal acknowledges non-trade concerns such as structural adjustments and animal welfare. Payments should be time-limited.

## **4. THE IMPLICATIONS OF PROPOSALS IN THE CURRENT WTO NEGOTIATIONS**

Since a number of key parameters are not elaborated in various proposals now under consideration in the WTO negotiations it is difficult to be precise about the implications. However, we have made estimates of the possible effects of the proposals, using what seem to be reasonable values, taking account of the negotiating positions as outlined in various statements and documents by the main players and based on discussions with negotiators in Geneva. The details of earlier proposals are given in the text above, but in what is now the (Cancun) proposal we assume the following parameters:

### *Developed countries:*

- 40% of tariff lines – average 36% cut (Uruguay Round formula)

- Bound out of quota rates (T0) for 10% most sensitive items cut by 15%
- T<sub>0</sub> for 30% most sensitive items cut by 44%
- 40% of tariff lines – Swiss formula (maximum rate=25%)
- 20% of tariff lines – cut to 0%
- 80% reduction in export subsidies
- 60% reduction of domestic support

*Developing countries:*

- 10% of most sensitive tariff lines – cut by 5%
- Next 40% most sensitive products – average 24% cut (Uruguay Round approach)
  - Bound out of quota rates (T0) for 10% most sensitive items cut by 10%
  - Bound out of quota rates (T0) for 30% most sensitive items cut by 26.7%
- 40% of tariff lines – Swiss formula (maximum rate=50%)
- 10% of tariff lines – cut to 5%
- 70% reduction of export subsidies
- 20% reduction of domestic support

*LDCs :*

- No change.

These parameters, and those of the earlier proposals, are then used in a specialised agricultural partial equilibrium model to simulate the policy change proposals, and the results of this analysis are presented in Tables 5-8<sup>6</sup>. As a cautionary note, under this kind of comparative static analysis, no account is taken of any adjustment costs nor of any transitional periods. The main value of the analysis is in the comparison of scenarios, rather than the overall levels.

Global annual welfare gains increase with the level of ambition (Table 5) from about between \$5 and \$22 billion, with the LDCs being among the main losers since their existing preferences are erodes and world prices rise. In less ambitious scenarios, the total welfare for developing

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<sup>6</sup> Peters and Vanzetti (2004) and Peters (2004). These studies use the FAO/UNCTAD Agricultural Trade Policy Simulation Model (ATPSM) which, together with a handbook and database, may be obtained from the UNCTAD's web-site free of charge. The system was developed with funding from the UK Department for International Development

countries is positive but small and for least-developed countries it is negative. This is influenced to a large degree by the reduction of export subsidies, which is estimated to lead to increased prices for temperate products, as well as a reduction in quota rents on sugar received by a significant number of developing countries. Developing countries gain more from more ambitious scenarios, which results from greater exports as well as allocative efficiency gains from modifications to their own policies.

**Table 5: Welfare impacts from alternative scenarios**

	<b>Cancún</b>	<b>Harbinson</b>	<b>Conservative</b>	<b>Ambitious</b>
	\$ m	\$ m	\$ m	\$ m
Developed	7220	11983	5066	14910
Developing	163	1040	742	5752
Least Developed	-141	-199	-83	1045
World	7242	12824	5725	21707
Group of 22	196	920	631	4264
Cairns	1228	2027	1009	4535

Source: ATPSM simulations.

In developing and least-developed countries, consumers lose as a group and producers gain because the rise in world prices lifts domestic prices (Tables 6 and 7).

**Table 6: Consumer surplus impacts from alternative scenarios**

	<b>Cancún</b>	<b>Harbinson</b>	<b>Conservative</b>	<b>Ambitious</b>
	\$ m	\$ m	\$ m	\$ m
Developed	20032	34735	13452	44866
Developing	-14529	-18023	-3681	667
Least Developed	-1760	-2455	-1295	4141
World	3743	14256	8476	49674
Group of 22	-11123	-11558	-2966	-1675
Cairns	-5954	-7090	-2949	-7962

Source: ATPSM simulations.

**Table 7: Producer surplus impacts from alternative scenarios**

	<b>Cancún</b>	<b>Harbinson</b>	<b>Conservative</b>	<b>Ambitious</b>
	\$ m	\$ m	\$ m	\$ m
Developed	-16543	-24403	-12358	-27222
Developing	17707	19204	5239	14486
Least Developed	1600	2230	1200	-2625
World	2764	-2970	-5918	-15361
Group of 22	11481	12097	3532	8753
Cairns	7266	8900	3789	12933

Source: ATPSM simulations.

The third component of the total welfare is government revenue (Table 8). As the table shows, there are substantial government revenue losses that result essentially from the tariff cuts that developing countries would have to make under the various scenarios, and these losses increase with the level of ambition. In the developed countries, government revenues are, in aggregate, positive because of reduction in export subsidy expenditure in the EU. In the US, domestic prices rise, and, hence, consumers face higher prices which also benefit producers.

**Table 8: Government revenue impacts from alternative scenarios**

	Cancún		Harbinson		Conservative		Ambitious	
	\$m	%	4 m	%	\$m	%	\$m	%
Developed	3'730	31	1'652	14	3'972	33	-2'735	-23
Developing	-3'014	-15	-140	-1	-816	-4	-9'401	-46
LDC	19	1	26	2	12	1	-470	-30
World	735	2	1'538	4	3'167	9	-12'605	-37
Group of 20	-162	-2	381	4	66	1	-2'814	-33
Cairns	-84	-3	217	8	170	6	-437	-16

Source: ATPSM Simulations

Table 9 shows the net export revenue effects for all scenarios. This shows the drop in the level of ambition as proposals have evolved, to the point where, taking account of the complex specifications, the developing countries overall suffer a decline in net export revenues, although obviously there is considerable country-to-country variation. The least-developed countries have the highest percentage increase in export revenues, although from a very low base.

**Table 9: Export revenue impacts from alternative scenarios**

	Cancún		Harbinson		Conservative		Ambitious	
	\$m	%	4 m	%	\$m	%	\$m	%
Developed	-938	-1	1189	1	185	0	10475	11
Developing	12272	13	16557	17	9815	10	31106	32
LDC	904	22	1254	30	859	21	2109	51
World	12237	6	19001	10	10859	5	43690	22
Group of 20	7861	15	10951	21	6489	12	20594	40
Cairns	6415	8	8297	10	4967	6	15805	20

Source: ATPSM Simulations

Regarding the sources of the changes, it would seem that the reductions of border protection contribute more than the reductions in export subsidies. However, it is possible that WTO members may agree on more ambitious reductions concerning export subsidies than import

tariffs, in which case the aggregate impact from export subsidy reductions may be considerable. Global welfare gains from a total elimination are estimated at \$4.3 billion, which compares with gains of about \$9.5 billion from reducing import tariffs applying the Uruguay Round formula (Peters, 2004). ABARE (2001) estimated gains from an elimination of export subsidies in the region of \$3.6 billion, a similar order of magnitude.

In looking at the effects of export subsidies, it is important to look at individual commodities, since there are very different impacts across commodities. Extreme examples where large changes result from the reduction or elimination of export subsidies are sugar and wheat. Whereas developing countries as a group greatly benefit from the elimination of sugar subsidies, they lose in terms of welfare from an elimination of wheat subsidies since most developing countries are net importers of wheat.

The strength of support for the various proposals depends on whether policymakers or negotiators emphasize the gains to producers, exporters, consumers or taxpayers. The estimated welfare impacts are the sum of these three effects. The existence of policies favouring producers (in developed countries) or consumers (as used to be the case in some developing countries) is evidence that policymakers favour one group over another for reasons that were discussed earlier in the paper. In developing countries, it is often argued that development and poverty imperatives require support for the agricultural sector – an important shift from the earlier import-substitution industrialisation policies. The negotiation strategy of most developing countries, namely to demand improved access to developed countries' markets and the elimination of trade-distorting subsidies and to be allowed to protect their own markets, is a strategy aimed at maximising the producer surplus in these countries, at least in the short term, albeit with some negative effects (via rising domestic food prices) on their own (largely urban) consumers.

If producers happen to be the poorest members of society and the targets of government support, it may be that reforms that reverse these policies are detrimental. Assessment of the impact of the proposals should be taken in the light of such considerations. The economic analysis merely points out the potential impacts of reforms. The weight attached to social, political and environmental considerations will depend on the circumstances and judgement of each country. However, it needs to be emphasised that the estimates discussed above say little



about poverty reduction, for example, because it is not clear *a priori* whether it is producers or consumers who constitute these groups. Furthermore, in many developing countries a large proportion of the population are subsistence farmers and this adds to the complexity. Rising world prices tend to benefit producers, and hence many of the rural poor, although this can be countered if tariffs are reduced by more than the rise in world prices. Price rises are greatest for the temperate products, such as livestock and grains, for which developing countries tend to be importers, to the detriment of consumers. The analysis indicates the likely impact on consumers and producers, but the desirability of this impact needed to be assessed for each country depending on its individual circumstances and objectives. Thus, rather than looking at total welfare, policy makers and negotiators may prefer to look at how consumers and producers are affected, and bring this in relation with the poverty structure and possible distribution effects in their own country.

As the negotiations have progressed the proposals appear to be converging. The annual estimated global welfare gains are about \$7 billion in the Cancún scenario and \$13 billion in the Harbinson scenario compared with \$5 and \$22 billion in the Conservative and the Ambitious scenarios respectively. However, the latest, Cancún, proposal is near the bottom of this range. Thus, the flexibility given to developed and developing countries by the Cancún market access formula waters down the welfare gains. Even though the formula contains one tariff-harmonizing Swiss formula component with rather ambitious coefficients of 25 for developed and 50 for developing countries, implementing the Uruguay Round numbers for the linear-cut portion of the formula gives overall welfare effects that are not much higher than a continuation of the Uruguay Round approach, along the lines of the initial EC proposal. Assuming the same smaller export subsidy and domestic support reductions in the Cancún scenario as in the Harbinson scenario (that is, reducing export subsidies by 45 per cent and domestic support by 55 per cent) further reduces the global welfare gains. However, since developing countries have, in general, higher bound tariff rates and since their bound tariffs do not in general vary as much as developed countries' tariffs, the Swiss formula part in the Cancún formula would require relatively higher reductions in developing country bound tariff. This, of course, depends on the coefficients that would be chosen. The Group of 22 proposal and the draft Cancún text, first revision, proposed for developing countries the opportunity to apply the Uruguay

Round reductions to all tariffs. This increases the degree of special and differential treatment with the above shown consequences, namely higher producer surplus and lower consumer surplus and welfare in developing countries.

Despite the various limitations of modelling, the results provide a useful indication of the possible impacts of an agreement on a framework like the draft Cancún Ministerial text. At this stage, it seems likely that the modalities will not be very ambitious, and potentially important welfare gains will be foregone. However, if developing countries push for a more ambitious round, then they would likely come under pressures to undertake more liberalisation than they seem willing to consider at the present stage of their development, despite potential longer term gains. Least-developed countries and net-food-importing countries should be aware of the possible negative impacts that they may face as a result of rising food prices, although this may be advantageous to their producers, which includes some of the poorest sections of society. Finally, developing countries should note the higher degree of flexibility that a Uruguay Round type approach gives to the developed countries. While some such flexibility may be necessary to forge an agreement, it may also reduce the development benefits of the current negotiations.

## **5. CONCLUSIONS**

Agriculture is closely linked to development and to poverty in most developing countries. The poor are affected by agricultural policies, whether as producers or consumers, and many rural communities are also highly dependent on what happens in the agricultural sector. In the current WTO negotiations on agriculture there are opportunities and challenges for the developing countries. In particular, there are differential impacts on producers and consumers and judgements will need to be made by each country in the light of where it perceives its interests to lie. On the whole, producers would seem to have much to gain from higher producer prices, and this would benefit whole rural communities where some of the poorest of the poor are to be found. Higher prices could be a problem for net food importers, but may draw forth new production that in the longer term will provide for greater food security and poverty reduction. Some form of assistance to facilitate this transition needs to be considered, perhaps through

donor operations, as many of these countries are also highly indebted.

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- 03/03 **Arijit Mukherjee**, “Bernard vs. Cournot Competition in Asymmetric Duopoly: The Role of Licensing”
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- 03/05 **Arijit Mukherjee and Soma Mukherjee**, “Welfare Effects of Entry: The Impact of Licensing”
- 03/06 **Arijit Mukherjee**, “Bertrand and Cournot Competitions in a Dynamic Game”
- 03/07 **Tai-Hwan Kim, Young-Sook Lee and Paul Newbold**, “Spurious Regressions with Processes Around Linear Trends or Drifts”

- 03/08 **Emi Mise, Tae-Hwan Kim and Paul Newbold**, “The Hodrick-Prescott Filter at Time Series Endpoints”
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- 03/14 **Tae-Hwan Kim and Christophe Muller**, “Two-Stage Quantile Regression When the First Stage is Based on Quantile Regression”
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- 03/19 **Piercarlo Zanchettin**, “Differentiated Duopoly With Asymmetric Costs: New Results from a Seminal Model”
- 03/20 **Bouwe R. Dijkstra and Daan P. van Soest**, “Environmental Uncertainty and Irreversible Investments in Abatement Technology”
- 03/21 **Richard Cornes and Jun-ichi Itaya**, “Models with Two or More Public Goods”
- 03/22 **Arijit Mukherjee and Soma Mukherjee**, “Licensing and Welfare Reducing Competition”
- 03/23 **Parantap Basu and Alessandra Guariglia**, “Foreign Direct Investment, Inequality, and Growth”
- 03/24 **Robert E. Carpenter and Alessandra Guariglia**, “Cash Flow, Investment, and Investment Opportunities: New Tests using UK Panel Data”
- 04/01 **Indraneel Dasgupta and Prasanta K. Pattanaik**, “ ‘Regular’ Choice and the Weak Axiom of Stochastic Revealed Preference”
- 04/02 **Lars Christian Moller**, “Sharing Transboundary Rivers Fairly and Efficiently”
- 04/03 **Alex Possajennikov**, “Evolutionary Stability of Constant Consistent Conjectures”
- 04/04 **Michael Bleaney, Spiros Bougheas and Ilias Skamnelos**, “Interactions Between Banking Crises and Currency Crises: A Theoretical Model”
- 04/05 **Arijit Mukherjee**, “Price and Quantity Competition Under Free Entry”
- 04/06 **Arijit Mukherjee and Soma Mukherjee**, “Domestic vs. Foreign Competition with Licensing”

## **Members of the Centre**

### **Director**

**Oliver Morrissey** - aid policy, trade and agriculture

## **Research Fellows (Internal)**

**Simon Appleton** – poverty, education, household economics  
**Adam Blake** – CGE models of low-income countries  
**Mike Bleaney** - growth, international macroeconomics  
**Indraneel Dasgupta** – development theory, household bargaining  
**Norman Gemmill** – growth and public sector issues  
**Ken Ingersent** - agricultural trade  
**Tim Lloyd** – agricultural commodity markets  
**Chris Milner** - trade and development  
**Wyn Morgan** - futures markets, commodity markets  
**Tony Rayner** - agricultural policy and trade

## **Research Fellows (External)**

**Manuela Francisco** (*University of Minho*) – inflation and exchange rate regimes  
**David Fielding** (*University of Leicester*) – investment, monetary and fiscal policy  
**Ravi Kanbur** (*Cornell*) – inequality, public goods – Visiting Research Fellow  
**Henrik Hansen** (*University of Copenhagen*) – aid and growth  
**Stephen Knowles** (*University of Otago*) – inequality and growth  
**Sam Laird** (*UNCTAD*) – trade policy, WTO  
**Robert Lensink** (*University of Groningen*) – aid, investment, macroeconomics  
**Scott McDonald** (*University of Sheffield*) – CGE modelling, agriculture  
**Mark McGillivray** (*WIDER, Helsinki*) – aid allocation, aid policy  
**Andrew McKay** (*University of Bath*) – household poverty, trade and poverty  
**Doug Nelson** (*Tulane University*) - political economy of trade  
**Farhad Noorbakhsh** (*University of Glasgow*) – inequality and human development  
**Robert Osei** (*Institute of Economic Affairs, Ghana*) – macroeconomic effects of aid  
**Alberto Paloni** (*University of Glasgow*) – conditionality, IMF and World Bank  
**Eric Strobl** (*University of Louvain*) – labour markets  
**Finn Tarp** (*University of Copenhagen*) – aid, CGE modelling