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Fair trade in tropical crops is possible

International commodity agreements revisited

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(The illustration on page 12 is from Henk van Ruitenbeek)

Fair trade in tropical crops is possible¹

International commodity agreements revisited

Niek Koning, Muriel Calo & Roel Jongeneel

1. Introduction

In spite of the growing rhetoric on international trade liberalisation that we hear today, developed countries continue to support their agriculture using methods that are harmful to farmers in developing countries. In WTO discussions, ‘non-trade distortionary’ payments are used as a pretext for continuing to displace imports and for exporting products below their own cost of production. Meanwhile, world markets for tropical crops that were actually liberalised have seen a deeper and more protracted price fall than in the 1930s. This has led to poverty and land degradation, and is the major cause of the debt crisis that has many developing countries in a stranglehold. Voices are now being raised calling for new arrangements aimed at improving the prices of tropical export crops. Kenya, Tanzania, and Uganda have placed the issue on the WTO agenda (WTO/CTD 2003). However, many western economists and policy-makers resist such new interventions, claiming that it will reduce welfare and encourage rent seeking. Moreover, in their view, the collapse of international commodity agreements in the 1980s proved that price-raising controls are doomed to failure.

In this paper, we address three questions:

- Are supportive arrangements for tropical export crops desirable?
- Why did international commodity agreements collapse?
- Are sustainable arrangements possible?

We find that some system of managed trade is needed. We argue that the failure of past agreements were the result of political rather than economic causes. Moreover, we believe that regulations can be made self-financing and resistant to free rider problems, and we put forward a proposal to this effect. Finally, we also discuss how developing countries may overcome the resistance that is met from governments of developed countries .

2. Historical overview

Since the late 19th century, economic and technological developments have induced oversupply and recurrent price falls in international agricultural markets. Developed countries responded by introducing protection measures, but producers of export crops could only be helped by arrangements that supported world market prices themselves. In the 1930s, a new price fall led to the first international commodity agreements being concluded. The majority were aimed at tropical export crops (sugar, tea, and rubber) in which colonial firms had vested interests. The US Department of Agriculture, the League of Nations, and the newly formed United Nations endorsed these initiatives (Chimni 1987). John Maynard Keynes included a commodity control organisation in his grand design for the Bretton Woods institutions (Keynes 1943). However, the US State Department opposed any

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restriction of free trade (Henningson 1981). As a consequence, the General Agreement on Tariffs and Trade (1947) allowed commodity agreements only in exceptional circumstances and bound to strict conditions. Whereas agribusiness sectors of OECD countries were strong enough to enforce domestic protection in the face of GATT regulations,² international agreements for tropical crops (sugar in 1954, coffee in 1962, cocoa in 1972) only materialised after laborious negotiations, or when developed countries had special reasons for accepting them (Chimni 1987; Gordon-Ashworth 1984).³

Meanwhile, decolonisation had caused an increase in the number of independent developing countries around the world. A new price decline made the governments of these developing countries sensitive to the issue of commodity prices. From 1964, they used the UN Conference on Trade and Development (UNCTAD) to demand international commodity controls that would stabilise and support their export earnings. The successful raising of oil prices by OPEC reinforced their self-confidence. In 1974, developing countries launched a campaign for a Common Fund for Commodities whose aim was to support the prices of key commodities, coupled to an indexation principle that resembled the 'parity' principle in OECD farm policies (Corea 1992; Maizels 1992). A resolution on an Integrated Programme for Commodities (IPC) included their main demands (though not the indexation principle) and was adopted without dissent in UNCTAD IV (1976). In the ensuing negotiations, however, predominantly Anglo-Saxon OECD countries raised all kinds of objections and sought to restrict any agreement to short-term buffer stock stabilisation. In doing so, they asserted that UNCTAD resolutions and supporting resolutions of the UN General Assembly were no more than non-binding 'soft law' statements (Brand *et al.* 1995; Chimni 1987; Maizels 1992). Although the IPC resolution called for negotiations on 18 commodities, only one new control agreement was concluded (for natural rubber in 1979). Meanwhile, a renewed sugar agreement failed because the EU refused to reduce its sharply intensified practices of sugar dumping.

After 1980, a change in the political climate eroded the remaining support for commodity agreements in OECD countries. At the same time, economic slow-down and new materials-saving technologies exacerbated the oversupply in commodity markets, thereby putting existing agreements to the test. The cocoa agreement had lost its export quota provisions as a result of pressure from OECD countries and retained only a buffer stock for price stabilisation. This soon overflowed and prices collapsed. A new agreement in 1993 included measures designed to reduce production capacity, but this was too small to have any significant effect. The International Coffee Agreement retained export quotas and successfully moderated the price fall until 1989, when controversy on quota redistribution and perceived market distortions also caused this agreement to collapse (Gilbert 1997; Gordon-Ashworth 1984; Maizels 1992). Since then, producing countries have twice attempted to set up unilateral export retention schemes, but with little success (Ponte 2002).

Between 1980 and 2002, the prices of coffee, cocoa, sugar cane, and natural rubber all fell by between 77 and 86 percent (Robbins 2003). (Cocoa prices improved last year, but this was no more than a limited recovery.) The price stabilisation mechanism of the only remaining control agreement (for rubber) was too flexible to moderate the decline (Gilbert 1997). In 1989, a poor apology for the Common Fund for Commodities was established but did nothing to stem the tide.

During the commodity boom of the 1970s, private banks bulging with inconvertible dollars had enticed governments of developing countries into heavy borrowing. The price falls left these countries with large unserviceable debts. To cope with such contingencies, they could fall back on a Compensatory Financing Facility of the International Monetary Fund, but in 1983 this institution made any further access to these funds conditional on the readiness of countries to negotiate their policies with it (Maizels 1992). It initiated the donor-conditionality, structural adjustment, and 'poverty reduction strategy papers' through which the IMF and the World Bank have pushed countries towards liberal reforms and export expansion. The standard recipes included reduced protection of domestic

² The most striking example was the US refusal to couple its import quotas for sugar and dairy produce to domestic production controls, which was sanctioned by a 'waiver' of GATT article XI in 1955.

³ An example of this was the International Coffee Agreement of 1962, which was accepted by the US as part of its 'Alliance for Progress' strategy for isolating Cuba.

food crops and new investment in export crops, which often exacerbated the oversupply in international markets (Robbins 2003).⁴

Meanwhile, in the Uruguay Round of GATT negotiations, the US launched a campaign for international agricultural trade liberalisation. The main thrust was against European export subsidies that hindered American grain exports, but the rhetoric also emphasised the importance of trade liberalisation for developing countries. In 1993, a US-EU compromise led to an agreement that prescribed reductions in traditional price supports but exempted certain direct payments to farmers. In the years that followed, substitution of such payments for price supports allowed both powers to maintain high levels of exports below their costs of production in spite of the restriction of export subsidies (Gardner 2002; Ritchie *et al.* 2003).⁵ In the Doha Round, the US and the EU are negotiating the terms of a further move in this direction. Both refuse to bind ‘decoupled payments’ to effective production controls. While thus continuing what many see as disguised dumping, the ‘special and differential treatment’ that these powers offer to developing countries does nothing to solve the tropical export crop crisis or to combat cheap imports that hit food crop producers in these countries (EC-US 2000). It has provoked strong dissatisfaction in developing countries and triggered the failure of the WTO conference in Cancún in 2003. Reconsidering the tropical export crops issue is therefore an urgent matter.

Any initiative to resolve the issue should take into consideration the fact that tropical export crop markets have changed since the 1970s. Marketing boards have been dissolved. Concentration in the trading and processing phases has increased. Six trading houses now control half the trade in green coffee beans, and two processors have half the market for roasted and instant coffee in their hands. Stock holding and the determination of quality criteria and techniques for raising quality have all shifted to these companies (Ponte 2002).⁶ Tendencies of product differentiation and niche market development can be perceived, but the influence on farm-gate prices is small, even though fair trade chains may have an exemplary function.

3. Are supportive arrangements for tropical export crops desirable?

In this section we examine the economic rationale for international controls for tropical export crops and some inefficiency arguments that have been raised against them.

Short-term price instability

In the aftermath of WWII, the thinking on commodity controls was strongly influenced by the perceived role of a commodity price fall in the 1930s depression. Rather than chronic oversupply, Keynes and Kaldor feared that price fluctuations would push the economy off an optimal growth path (Keynes 1943; Kaldor 1987). The decrease in the share of primary commodities in economic output has diminished this risk at the global level, but in developing country economies it may still be considerable. In addition, a temporary decline in prices might induce a global undershooting of the long-term equilibrium level of agricultural investment. It could affect the availability of food in the future—especially if it were to coincide with a secular shift to tighter food markets (cf. Tweeten

⁴ A recent example seen by one author of this paper was a diagnostic trade study that was supervised by the World Bank in Addis Ababa in an integrated programme for trade-related technical assistance to least developed countries (Rajapatirana *et al.* 2003). In the midst of the international oversupply crisis in coffee, this study advises Ethiopia to expand its coffee production.

⁵ That green box payments would not interfere with markets is not true. Even ‘decoupled’ payments have market consequences by their wealth and risk effects and updating of base periods.

⁶ For instance, coffee roasters are now steam-cleaning robusta coffees, which increases their flexibility in blending and makes them less dependent on producers.

1998). Existing studies of long-term global food security (FAO 2001; Mitchell *et al.* 1997; Rosegrant *et al.* 1995) do not account for this possibility since they base their assumptions on linear dynamics. We cannot assess this risk, but one might argue that price stabilisation is needed to avoid it.

Deteriorating terms of trade

UNCTAD's campaign in the 1960s and 70s shifted the focus from short-term price instability to deteriorating terms of trade of developing countries. The underlying theory, pioneered by Prebisch (1950) and Singer (1950) and refined by Spraos (1983), postulated that developing countries were caught in a trap of specialisation in primary commodities. These were faced with an inelastic demand, so that increases in their supply worsened their terms of trade compared with the industrial products and services from developed countries. According to Spraos (1983), the productivity- and employment-corrected terms of trade of developing countries continued to decline even during the recovery of commodity prices in the 1960s and '70s.

This theory needs to be modified. In the first place, the idea that the colonial division of labour has locked developing countries into primary commodity production is too crude. Several developing countries are now industrialising their economies. Nevertheless, there is farm overproduction because segments of the population are tied to agriculture in spite of low earnings. In its first phase, industrialisation requires agricultural development to breed the human and social capital it requires, and to fuel domestic demand for industrial products (Delgado *et al.* 1999; Timmer 1995; Koning 2002).⁷ A squeeze on farm earnings that hinders investment in agriculture also hampers the increase in industrial jobs, locking a large part of the population into rural poverty. Once industrialisation has been initiated, many people will still be tied to the land. Imperfect information makes it rational for industrial employers to pay higher than market-clearing wages ('efficiency wages') to secure the loyal dedication of workers (Akerlof and Yellen 1986).⁸ This causes obstacles such as unemployment for farm workers who want to change jobs. In addition, a profit squeeze may drive out larger farm entrepreneurs, leaving agriculture to household producers, who are less mobile than hired workers (Koning 1994). Social-psychological adaptation also plays a role. For instance, Haagsma and Koning (2002) show how temporary transition barriers (like temporary mass unemployment) may provoke occupational preference norms that become self-reinforcing.

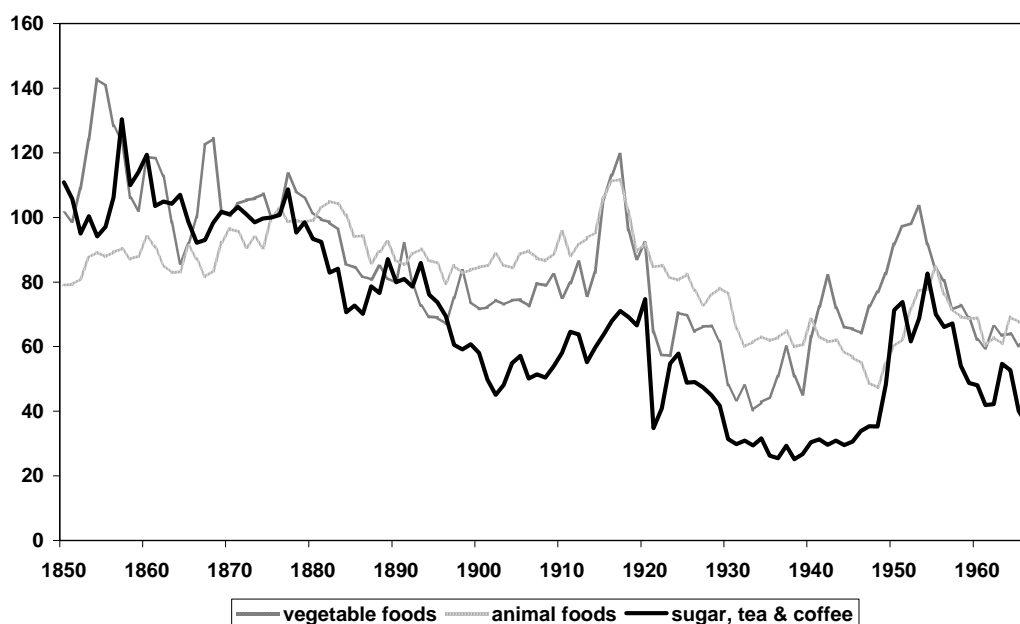
A second modification is needed because, with inelastic but increasing demand, a small enough increase in supply would cause high, rather than low export earnings. So, why does supply increase at a rate that squeezes producer incomes? Spraos' answer—competition forces producers to increase production—is insufficient to explain why individual producer responses add up to aggregate oversupply. For centuries, the supply of farm products lagged behind the demand in spite of producer competition. This changed only when the global economy entered a new evolutionary regime in the late 19th century. Railways and motor vessels increased the areas where farmers had access to export markets; the chemical industry brought cheap agri-chemicals; and electricity, internal combustion and petro-chemistry enabled the substitution of minerals for farm-produced materials. This boosted the influence that individual farmer responses could exert on supply, while curbing the increase in demand—an effect that continued in the 20th century through new varieties that transformed more fertiliser into harvestable biomass and new technologies that reduced materials used per unit of output. Given the inelastic demand for farm products, this dynamic led to recurrent oversupply, which depressed agricultural prices and earnings (Schultz 1945). Furthermore, changes in industrial relations stimulated rises in industrial wages—the more so when, after WWII, new social security arrangements and employment policies bolstered the bargaining power of industrial workers. The result was divergent pressures on industrial and agricultural earnings, which—because of the impediments to

⁷ Some economists have downplayed the importance of agricultural growth, emphasising the scope for non-farm export sectors to become an engine of growth (see Timmer 1988 for this discussion), but this is contradicted by empirical evidence and studies that show the importance of domestic markets for the evolution of competitive export sectors (e.g., Porter 1990).

⁸ This may be especially relevant for countries where labour cultures have not yet adjusted to modern industrial requirements (Saygili 1998).

labour mobility—were only partly compensated for by the outflow of agricultural workers. Rather than leaving a sector that offered low earnings, as standard-economic theory would predict, many farmers reacted by tightening their belts and increasing their labour efforts. In developed countries, they adopted new techniques to raise production levels, and technical change became a treadmill that generated overproduction. A balance between growth in supply and demand was achieved only when the treadmill squeezed its own fuel supply by depressing profits enough to block further investment. To prevent the ensuing malaise, governments took measures that moderated the profit squeeze and stimulated modernisation (Koning 1994), but this allowed the treadmill to continue boosting production. In developing countries, technical progress and the increase in production remained more limited. However, the low international prices of food crops made farmers overextend the production of tropical export staples.

Figure 1: Real prices of selected tropical crops and temperate vegetable and animal foods on the British market (1875 = 100)



Source: Calculations based on data from Sauerbeck-Statist and Feinstein in Mitchell (1988: 725-727, 831-835, 837-841)

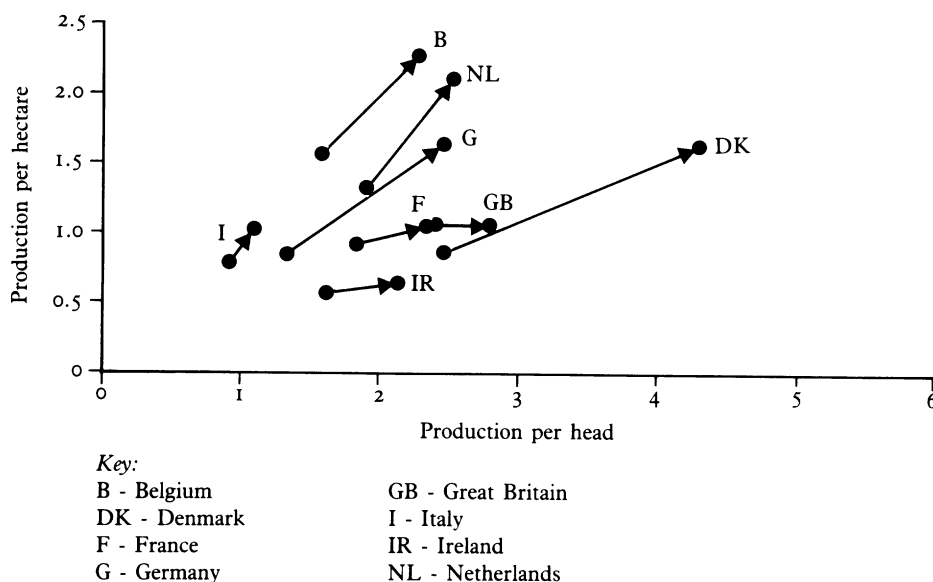
Through these amendments, the theory of deteriorating terms of trade of developing countries approaches that of a squeeze on agricultural earnings in developed countries (Schultz 1945; Cochrane 1959; Johnson & Quance 1972). This conclusion would not have gone down well with some older proponents of the theory (e.g., Spraos 1983), but the fact is that the price evolution of tropical and temperate crops has been broadly comparable (see Figure 1). An integration of both theories would have an important consequence: it would allow us to relate the problems in developing countries to historical experiences in developed countries. For instance, the stagnation of productivity growth in British agriculture between 1880 and 1930, when Britain maintained its policy of free trade in the face of falling agricultural prices, might shed more light on the current stagnation of agriculture in Sub-Saharan Africa (see Box 1). Of course, the situations of farmers in different parts of the world vary enormously. In developed countries, good infrastructures, supportive policies and off-farm employment have moderated the squeeze on farm earnings and allowed rapid increases in productivity.⁹ In less-favoured areas in developing countries, farmers lack such mitigating conditions.

⁹ Assertions that it has disappeared (e.g. Gardner 1992), however, are based on inadequate statistics including the use of supported rather than free market earnings.

Free trade theory and historical experience in developed countries: British agriculture between 1880 and 1930

Orthodox-economic trade theory teaches that free trade leads to maximum welfare. When some development causes a decrease in international agricultural prices, this should not be arrested by national or multilateral price support, but the farm sectors of countries should adjust by innovation, shifting to other products, or releasing labour to other sectors. Farmers may go through some difficult years, but farm profits and productivity growth should recover eventually. However, there is historical experience in developed countries that contradicts this hypothesis. When international agricultural prices plummeted after 1875, most West European countries resorted to protection. Other developed countries persisted with free trade until a new price fall around 1930. Of these countries, Denmark, the Netherlands, and the white settler countries outside Europe enjoyed special advantages in agriculture. They adjusted in accordance with the standard theory, although their farm sectors only really recovered when world market prices temporarily rallied in the early 20th century. Britain also resisted protection. It possessed the most technically advanced agriculture in the world, but industrial competition for labour had raised farm wages, and it no longer had a comparative advantage in farming. According to the standard theory, adjustment would have led to a reduction or elimination of agriculture, but if a farm sector managed to survive to some extent it would see a recovery of profits and productivity growth. In reality, farm profits remained low, and productivity stagnated throughout this period. This was due, not to a technological ceiling, but to widespread neglect of soil fertility and buildings and a drop in investment in new capital goods (see Koning 1994 and literature referred to). Figure 2 shows that, already at the eve of WWII, Britain had fallen far behind the European productivity frontier on which it had been together with Denmark, the Netherlands and Belgium. At the same time, Germany, the textbook case of agricultural protection, had rapidly moved to the forefront – a performance that contradicts the standard view that protection breeds inefficiency. Even though protection alone did not guarantee farm progress (as the poor performance of protectionist France and Italy shows), the stagnation of agricultural productivity in Britain and its rapid increase in Germany cannot readily be explained by textbook theory.

Figure 2: The growth of agricultural productivity per head and per hectare in eight countries of western Europe, 1870-1910 (in wheat units and 1870 prices)



Source: Van Zanden (1991).

Low prices lead to vicious cycles of poverty and soil degradation—the more so where farmers are overtaxed rather than protected (Bates 1981; Krueger *et al.* 1991). Nevertheless, poor farmers in the South and modern farmers in the North have one thing in common: they are both threatened by global oversupply, and may both desire arrangements that reduce it. A synthesis of the theories of deteriorating terms of trade and of low farm earnings would show that imbalances in international agricultural markets should be corrected by a balanced system of managed trade and the extension of supportive policies to developing countries' trade rather than by global and/or pseudo liberalisation.

Drawbacks of controls

The reasons for stabilising or supporting tropical export crop prices should be weighed against the disadvantages of such interventions. Some economists have argued that buffer stock stabilisation would destabilise rather than stabilise the export earnings of developing countries (Massell 1969; Oi 1961), but this is no longer believed (Gosh *et al.* 1987; Van Groenendaal & Vingerhoets 1995; Lee & Blandford 1980; Nguyen 1980). However, price stabilisation through stock operations may be quite expensive (also Newberry & Stiglitz 1981). In comparison, quota arrangements that raise prices above market-determined trend may be cheaper. However, these are anathema to orthodox economists, who contend that quotas would hurt consumers, cause deadweight efficiency losses, freeze existing production structures, induce rent seeking, and cause all kinds of other distortions (Bohman *et al.* 1996; Gwyer 1973; Herrmann 1986; Johnson 1967, 1977; MacBean 1966). However, the fact that consumers will be hurt cannot be seen as a serious disadvantage. Most consumers of tropical export crops are richer than the producers of these crops. From an equity point of view, a redistribution of income from the former to the latter can hardly be seen as a cost. Moreover, the world market prices of most tropical crops are a small part of the final consumer prices, and neither always move in unison. Although the world market prices of coffee, sugar, and cocoa strongly declined after 1980, final product prices increased (Robbins 2003).

Arguments about deadweight losses are equally futile. A 'deadweight loss' is the difference between what consumers lose and producers gain. It is usually slight compared to the redistribution itself (Spraos 1983). Moreover, it is no efficiency loss. 'Efficiency' is an attribute of the relation between means and ends. The only relevant ends in economic theory are those of citizens (the economic actors) themselves. If they want a redistribution of income and accept the ensuing 'deadweight loss', it is not redistribution that constitutes a cost, but the lack of it. Economists who equate deadweight losses with efficiency losses are allowing their own utilitarian aims to creep into a seemingly objective analysis (Hausman & McPherson 1993; Jongeneel & Koning 1997; Sen 2001).

Other drawbacks are real and may compromise the sustainability of arrangements.

- Government bureaucracies or corrupt officials have often appropriated the benefits of export controls (Bohman *et al.* 1996).¹⁰ This limits the improvement of producer earnings, and threatens the support for controls even in producing countries themselves.¹¹
- Quota systems have often favoured established producers over new low-cost producers, and the latter's dissatisfaction exacerbates the free rider problem that makes their achievement more difficult (Gilbert 1996; Gwyer 1973; Rangajaran 1978). Furthermore, rigid quotas hamper increases in efficiency as well as preventing the adjustment of the volumes of different grades to changing consumer demand, as exemplified by the distorted supply of robustas and arabicas under the coffee agreement.
- Arrangements that allow extra-quota exports to non-member markets may encourage the dumping of surpluses on these markets. Again, the coffee agreement provides an example (Daviron 1996;

¹⁰ For neo-classical economists, rent-seeking also exists if producers receive higher prices than those paid by non-cooperating consuming countries (see, for example, remarks in Bohman *et al.* 1986 on coffee in Kenya). In our view, this is not a problem, as raising producer prices is the aim of the controls. However, price differentials between cooperating and non-cooperating countries may undermine the political support of the arrangement.

¹¹ A case in point is the perceived profiteering by the Instituto Brasileiro do Café, which undermined the support for a new coffee agreement after the existing one had collapsed in 1989 (Gilbert 1996).

Herrmann 1986). Member importing countries saw part of the expenses they paid for supporting producers leak away to non-member importing countries, thereby creating a disincentive for importing countries to participate in the scheme and encouraging illegal re-exports that undermined the system itself (Robbins 2003).

An effective and sustainable arrangement for supporting the prices of tropical export crops would avoid or minimise these drawbacks. In Section 5, we offer some proposals to this effect.

More efficient alternatives?

Several economists have asserted that there are better means than buffer stocks for stabilising export prices and earnings. They have pointed to counter-cyclical government saving (Caine 1958; Johnson 1967; Behrman 1987), futures markets (Gilbert 1996), and international schemes for financial compensation of export earnings shortfalls (Guillaumont 1987; Hewitt 1987). However, these solutions are not very effective. Governments spend rather than save temporary increases in export revenues (Maizels 1992). Attempts to give farmers more access to futures markets have not been successful (Robbins 2003). Besides, these markets reduce price risks, but not price instability itself (Kaldor 1987; MacBean & Nguyen 1987). Balance of payments support helps governments rather than farmers (Maizels 1992). Moreover, it has been coupled to demands for export expansion that reinforce the existing oversupply in international markets (Robbins 2003).

Export taxes have been put forward as a more efficient means than quotas for raising commodity prices. While they increase international prices, such taxes decrease domestic prices, so that farmers have no incentive to produce more than is absorbed by demand (Lal 1983). Kaldor (1964) proposed a combination of export taxes and quotas in which countries would use export taxes to reduce production to national quotas. Because countries with lower marginal costs would need higher taxes for this, tax differentials would provide objective criteria for a periodic redistribution of quotas from high cost countries to countries with lower cost. The problem with this idea is that taxes end up in the pockets of the government, and not in those of the farmer. This makes it hard to avoid the situation where bureaucracies rather than farmers benefit, or that client favouritism distorts any recycling to farmers (cf. Bates 1981). Besides, recycling involves a problem similar to that of 'decoupled payments' in OECD countries: it always stimulates production, even if less so than direct price support (cf. Gardner 2002). Our proposal in Section 5 includes export taxes, but only for financing purposes, and decreasing over time.

Diversification has been portrayed as the grand solution for low or unstable commodity prices (Lal 1983). But shifting to other crops is difficult and can create new surpluses (Robbins 2003), while shifting to off-farm activities remains difficult as long as agricultural stagnation is hampering the development of industry and services.¹² Economic growth certainly requires diversification and the release of farm workers to other sectors. However, rather than a cure for low output prices, such diversification is itself dependent on price improvements that allow agriculture to grow and become a booster for development.

4. Why did international commodity agreements collapse?

Immediate causes

The story of the collapse of existing commodity agreements is a familiar one. The 1977 sugar agreement collapsed mainly because the EU refused to adhere to its terms and started dumping

¹² Besides, tariff escalation in OECD countries is hampering investment in agri-processing firms.

increasing amounts of excess sugar onto world markets. The US responded by reintroducing tough import quotas, without limiting its own production. Together controlling a large portion of the world market, EU and US sugar policies destabilised and drove down world sugar prices after 1980—countering the reduction of export quotas under the sugar agreement and hampering agreement between its producer members. Unable to defend its price floor, the agreement lapsed in 1984 after a two-year extension, and no new control agreement followed (Gilbert 1996; Gordon-Ashworth 1984).

The 1980 and 1986 cocoa agreements could not cope with the chronic surplus situation that arose in the 1980s. Previous agreements had combined buffer stocks and export quotas, but at the insistence of developed countries only a buffer stock had been retained, which soon overflowed. The non-participation of the main importing country (the US) and the main exporting country (Ivory Coast) exacerbated the situation by contributing to the under-funded condition of the stock (Gilbert 1996). An agreement in 1994 included supply management provisions for the first time (Maizels *et al.* 1997), but these were too small to have a significant effect. A new agreement signed in 2003 failed to include any economic provisions.

The coffee agreement successfully moderated the decline in coffee prices until 1989, showing that commodity controls can be effective. This was possible because a buffer stock mechanism was combined with export quotas, and no dumping by developed countries could distort the markets of this tropical crop. In 1989, the agreement lapsed due to the consuming countries withdrawing their support and funds, and producing countries disagreeing on the redistribution of quotas. The US, which had previously endorsed the agreement for foreign-policy reasons related to Cuba, became strongly opposed to a new agreement. Its objections were shared by other importing countries and included the dumping of extra-quota coffee in non-member countries, and rigidities in the quota system that hampered an adjustment to changes in demand favouring arabica over robusta (Gilbert 1996). Subsequent attempts at unilateral control of the coffee market by producing countries in 1993 and 2000 failed because the schemes were inadequate, government control over stocks and exports flows was weakened by market liberalisation, and compliance could not easily be enforced (Ponte 2002). Also, several producing countries did not co-operate; Mexico, for example, failed to support the 2000 scheme because of the US threat of a legal challenge under NAFTA.

These stories yield four immediate reasons why commodity agreements collapsed:

- *The free rider problem of producing countries.* Individual producer countries were able to remain outside an agreement and still benefit from it. It hampered agreement between them and reinforced conflicts on quota distribution and funding. Increases in the number of producing countries exacerbated the problem. The same was true of the unequal balance of power in negotiations: established producers wielded more influence than new low-cost producers, reducing the latter's incentives to participate.
- *Domestic farm policies of developed countries.* With tropical-temperate crops like sugar, developed countries could also be free riders. EU and US domestic policies contributed to price falls and complicated arrangements.
- *Lack of funding because major countries declined to co-operate.* The non-participation of major consuming (and sometimes producing) countries in agreements led to under-funding of buffer stocks. Additionally, major consuming countries were able to block the implementation of the Integrated Programme for Commodities by refusing to finance its centrepiece, the Common Fund.
- *Absence of supply management.* Without production controls, export quotas proved inadequate in the face of structural oversupply. The fact that effective agreements required supply management had already been concluded by the US Department of Agriculture in the 1940s based on the experiences in the 1930s (Henningson 1981). However, as the Keynesian emphasis on short-term stabilisation gained dominance, this was forgotten in the post-war period.

Agriculture and the GATT/WTO: some are more equal than others...



The underlying constitutional problem

Economists mistakenly think that the free rider problem made commodity agreements unsustainable. In reality, this problem can be reduced by self-financing arrangements that shift funding cost to consumers; through objective and transparent mechanisms that allow a gradual shifting of production from higher-cost countries to lower-cost countries; and by combining negotiations on several commodities to balance benefits between countries (see Section 5). Rather than through some inherent unsustainability, agreements collapsed and the Integrated Programme for Commodities failed because commodity negotiations were bound to rules that maximised rather than minimised free rider problems and other sources of transaction costs.

During the 1930s and continuing into WWII, the idea of commodity controls had gained in international momentum. The World Monetary and Economic Conference (1933) had called for comprehensive commodity agreements, and Keynes elaborated on the idea in his proposal for an International Commodity Control to the British government. Far-reaching commodity agreements were also advocated by the US Department of Agriculture (Henningson 1981; 1987), and the UN Conference on Food and Agriculture in 1943 likewise proposed an international organisation for this purpose (Brand *et al.* 1995; Chimni 1987). However, the US State Department adamantly opposed the idea, envisioning instead a nationalistic policy of export expansion in a free trade framework (Henningson 1981). Ignoring the global call for co-ordinated commodity controls, US-UK negotiations during WWII envisaged the liberalisation of international trade. After the war, the US put forward a like-minded proposal for an International Trade Organisation at the UN Economic and Social Council (ECOSOC), which became the Havana Charter. The US itself refused to ratify it, but important chapters survived, with chapter IV becoming the GATT (1947). It anchored the dominant approach to international trade policy firmly in free trade principles. Chapter VI dealt with commodity policies and contained narrow exceptions to this approach. It allowed international commodity agreements, but only in exceptional cases when normal market forces could not correct a burdensome surplus in good time. It required open participation and equal voting power of both producing and consuming countries in negotiations, and imposed a 5-year maximum time limit on the life of an agreement (Brand *et al.* 1995). This chapter was adopted by ECOSOC as a guide for intergovernmental action to redress commodity problems and was endorsed by GATT article XX (h). The restriction to exceptional conditions limited negotiations on agreements to a commodity-by-commodity approach rather than a comprehensive approach that included several commodities at once. The bipartite voting principle led to concurrent majority rule: a simple majority of both producing *and*

consuming countries had to approve a decision before it was accepted (Chimni 1987). As a result, a handful of unwilling consuming countries were able to block consensus on agreements or demand far-reaching concessions. The 5-year limit meant agreements were caught in a cycle of near constant renegotiating, offering further opportunities for conflict and obstruction.

In this way, restrictive rules had been entrenched before developing countries had achieved decolonisation and gained an independent voice. In the decades that followed, developing countries tried to substitute a more facilitating international customary law framework. Through independence, they accumulated enough power in ECOSOC to launch the first UNCTAD conference in 1964, and establish it as a permanent body through the UN General Assembly in 1965. UNCTAD recognised the damaging effect of the persistent decline in real commodity prices on the development of poor countries, as well as the need for international government intervention to correct this situation by price support. However, this concept was strongly resisted by certain developed countries, fearing that this might undermine the GATT free trade principles, and their own low import bill (Maizels 1992). To allay their resistance, price support was not too explicitly emphasised and buffer stocks rather than export controls remained most common. Several agreements were negotiated under UNCTAD auspices, but still under GATT rules. However, a number of developed countries tried to water down UNCTAD's scope and authority and attempted to bypass it in 1967 by negotiating on wheat in the Kennedy GATT Round (*ibid.*).

From UNCTAD II (1968) onwards, proposals were made to address commodity issues through a common framework rather than on a commodity-by-commodity basis. The UN General Assembly's resolution on a New International Economic Order (NIEO), its Charter of Economic Rights and Duties of States, and the UNCTAD secretariat's proposal of an Integrated Programme for Commodities, all in 1974, represented a final effort to provide the legal framework for such an approach. The IPC proposal envisaged co-ordinated negotiations on 17 commodities, with buffer stocks financed by a \$6 billion Common Fund. It implicitly aimed at price support by framing price stabilisation in terms of improving and sustaining the real income of countries through increased export earnings at levels that would be 'remunerative and just to producers and equitable to consumers' (Maizels 1992).

OPEC-induced fears for unilateral cartel attempts by producers kept unwilling developed countries from openly opposing the proposal. At UNCTAD IV (1976), a resolution that embraced its main aspects was adopted without dissent. However, its aims were never fulfilled. Taking cover behind the 'soft law' argument, major developed countries (especially the US, the UK, and Germany) obstructed the negotiations, so that little was realised. Agreements continued to be negotiated on a commodity-by-commodity basis. Negotiations for the Common Fund were consistently obstructed by developed countries due to a voting formula that gave them 42% of the votes—enough to block major financial decisions (Maizels 1992). Although an agreement for the Common Fund was signed in 1980, it was only established nine years later due to delays and obstructions, and lacks a mechanism to fund market interventions (Robbins 2003).

The perception that UNCTAD and General Assembly resolutions were non-binding 'soft law' statements, in contrast to the 'hard law' of GATT rules, enabled developed countries to renege on their commitments despite continued participation—leading to what in political-economic terms can be called a 'hypocritical equilibrium' (Foreman-Peck 2000). Meanwhile, the distinction between 'hard' and 'soft' law remains entirely interpretative. It can as well be argued that UN resolutions have binding customary law consequences that the US and others illegally refuse to accept (Chimni 1987). In the last instance, the Integrated Programme for Commodities failed and commodity agreements collapsed because developing countries did not develop sufficient power to really change the underlying constitutional framework. They created a potential alternative customary law framework, but failed to make it effective through credible threats that could enforce compliance with commitments, or override continued obstruction. This argument is supported by the few cases where developing countries were able to enforce concessions: the 1980 coffee agreement, and to some extent, the 1979 rubber agreement. Both were achieved because producing countries had evolved credible

fall-back positions in the form of unilateral cartel arrangements (Gilbert 1996; Maizels 1992). In the next section, we discuss how the balance of power could be changed.

5. Are sustainable price-supporting arrangements possible?

A robust self-financing system

Based on the ideas we have outlined in the preceding sections we can deduce some requirements that price-supporting arrangements need to meet for them to be sustainable. Such arrangements should involve supply management, fair and transparent mechanisms that allow shifts of production from higher-cost to lower-cost countries, resistance to usurpation of benefits by interests for which they are not intended, and independence from financial support from importing countries. By way of example, we present an approach that meets these conditions.

- Developing country governments establish a new common fund (Fair Trade Fund), target a number of key export crops, and specify desirable price ranges for these crops.
- When a price-supporting scheme (Fair Trade arrangement) is introduced for a crop, the participating countries impose a uniform export tax. The revenue is transferred to the Fair Trade Fund, which uses it to buy existing stocks, plus as much of the current production as would raise world market prices sufficiently to allow a modest improvement in farmer earnings in spite of the tax. Apart from a buffer stock, all purchases are destroyed or denatured to induce expectations of price rises, thereby stimulating private stockholding and moderating the size of the intervention required. Meanwhile, the Fund issues quota certificates for individual producers, which are allocated through traders, processors or marketing boards. Inter-professional arbitration committees settle any conflicts. During the subsequent few years, the Fund uses the tax revenue to buy quota rights from producers to achieve a stepwise reduction of production. Furthermore, it continues to buy sufficient parts of the current production to raise prices further and to allow a gradual increase in producer earnings.
- When production capacity has been reduced sufficiently to move prices within the pre-established price band, the export tax is reduced so that farm-gate prices come closer to world market levels. The Fund limits its intervention in the product markets to the management of a buffer stock for short-term price stabilisation. Farmers are now allowed to buy and sell quotas in national quota exchanges (with decentralised counters to maximise access) that are managed by the Fair Trade Fund. National governments may opt to subdivide exchanges in closed departments for separate areas to maintain production in less-favoured districts. Meanwhile, the size of individual production quotas is adjusted periodically to keep prices within the price band. The band itself adjusted so that the weighted average of national quota prices remains at a fixed level. (Increased quota prices are taken as an indication of decreased production costs).
- The Fund uses the remaining export tax revenue to purchase part of the quotas that are sold at the national quota exchanges. It reallocates these quotas for free reallocation to farmers according to criteria that have been decided by the national government. (Again, inter-professional committees settle conflicts). In addition, the Fund transfers part of the quotas that it purchases in countries where quota prices are low (indicating high marginal costs) to countries where they are high (indicating comparatively efficient producers). The volume of quota purchases in a country and the part that is transferred to low-cost countries are calculated using a formula that is agreed upon in advance by the participating governments and that specifies (i) an average percentage of the global quota turnover that will be purchased by the Fund, and (ii) a rule that couples quota price differentials to yearly percentage reductions or increases in national quota volumes.

We believe that this could be a robust and transparent arrangement. It is entirely self-financing and not dependent on the co-operation of importing countries. The involvement of chains in the allocation of quotas enhances its feasibility, while the arbitration committees guarantee fairness to farmers.

Although the national quota exchanges encourage efficient reallocation of quotas within countries, the free reallocation of part of the traded quotas prevents the protective effect of the arrangement from leaking away through these markets. The sovereignty of national governments is respected because they structure this free reallocation and the regional reallocation of all traded quotas within their own territories. Meanwhile, the automatic redistribution from high-cost countries to low-cost countries reduces free rider problems between governments. On the other hand, no government is compelled to do something against its will, since the price band, average recycling of traded quotas, and formula for redistribution between countries are established beforehand by joint decision. Governments can be mutually assured that the principles will be fairly applied, since the implementation is left to a supranational organisation (the Fund). Incentives for misuse are limited and minimised. Export taxes are used for financing the scheme only, are controlled by the Fund, and decrease progressively after the first years. Apart from these taxes, the improvement in world market prices benefits producers. The quota purchases by the Fund will ensure that the national quota exchanges become the effective markets for quotas, which makes it difficult to bribe farmers to bid up quota prices or withhold quotas to improve a country's position in the international quota redistribution.¹³ Moreover, this redistribution is controlled by the Fund, which has the authority to punish misuse.

We present this proposal simply to illustrate principles and possibilities. Alternative designs are also possible. Besides, it would be best to co-ordinate negotiations on different crops because this would facilitate trade-off benefits between countries. To increase the effect on poverty reduction and sustainable development, arrangements for supporting export crop prices could be coupled to a public warehouse system. Under such a system, each farmer would have the right to deposit his crop in a warehouse managed by the Fund and to receive an internationally tradable certificate on it. Farmers could be allowed to use these certificates as collateral for loans from the Fund, at cost-effective interest rates, to a maximum of, say, three-quarters of the certificate's current value. Such a system, which was already proposed by US farmer movements in the late 19th century (Goodwyn 1976) would ease financial constraints for farmers and free them from the necessity to sell crops immediately after harvest, when prices are low.

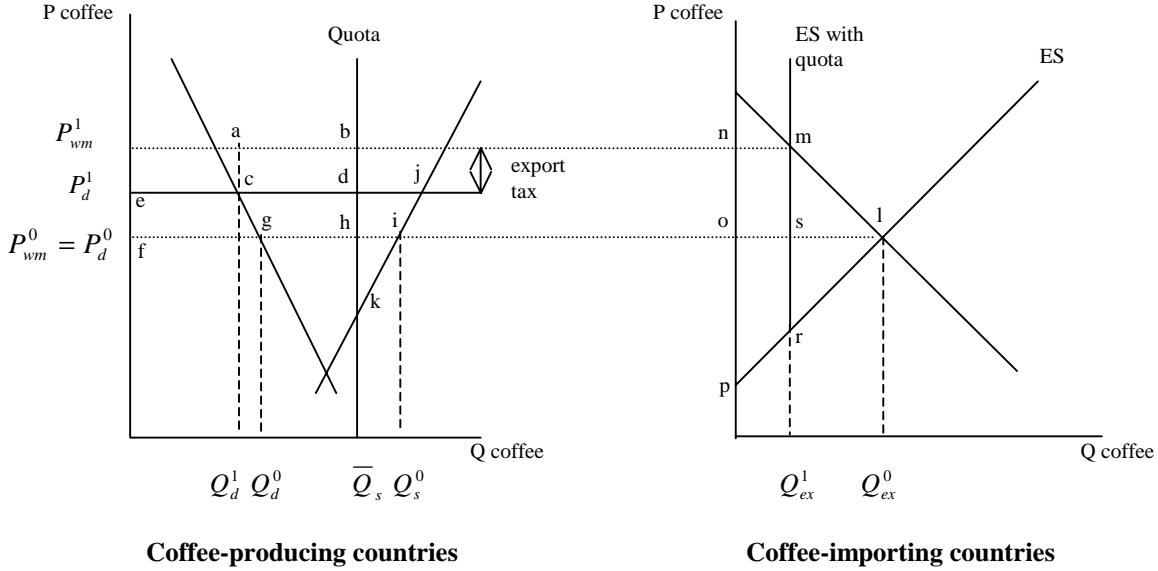
An example: coffee

By way of an example, we shall use a simple model of the international coffee market to examine how this proposal would work out for coffee. The model is a simple partial equilibrium model (see Figure 2 for a graphical illustration). Coffee-producing (and coffee-exporting) countries have a domestic demand function and a supply function (see left panel of Figure 3). Coffee-importing countries are represented by a (net) demand function (see right panel of the figure). The supply to these countries is represented by the excess supply curve of the producing and exporting countries (i.e. the difference between supply and demand in the left panel). Three policy measures are distinguished: production quotas, an export tax, and a buffer stock. The aggregate production quota is represented by the vertical line at \bar{q}_s (left panel) and the derived excess supply with quota in the right panel. As can be seen from the right panel, because of the production quota, the world market price of coffee rises from p_{wm}^0 to p_{wm}^1 . The export tax creates a wedge between the world market price and the price received by coffee growers in the producing countries, or $p_s^1 = p_{wm}^1 - \text{export tax}$. As a consequence of the export tax, the coffee producers receive a price below the world market price level. This is also the price that has to be paid by local consumers in the coffee-producing countries. The revenue from the export tax is equal to area $abcd$. The change in producer surplus is equal to areas $edfh - ijk$, which is assumed to be greater than zero, i.e. producers benefit. The loss in consumer surplus in the coffee-producing country is $ecgf$. The buffer stock is not explicitly drawn in the figure. However, changes in the buffer stock could be easily incorporated into it by representing the Fund as an additional demander (intervention purchases) or supplier (buffer stock sales) of coffee. The model has been calibrated with export and

¹³ Such bribing by non-monopsonistic traders will also be discouraged by free rider problems.

price data from the International Coffee Organisation of 1985, 1990, 1995, and 2000-2002. More details are given in Appendix 1.

Figure 3: Supply management in the coffee market



The model is used to simulate the introduction over 5 years of a self-financing supply management scheme, which roughly doubles the coffee price on the world market. Table 1 below shows the results of the simulation. Supply is curbed by issuing production rights (production quotas) to farmers and step-by-step buying quotas out of production so that the global production capacity is reduced to 88 million bags after 5 years. We assume that farmers are willing to sell sufficient quotas at a price of four times the market price per unit of output, which is a conservative estimate of the net present value of the production rights. At the same time, the Fund intervenes in the market through intervention purchases, which make coffee scarcer and drive up the world market price to double its initial value. The intervention purchases needed for this become smaller as the aggregate quota is reduced and are ended after the third year. Meanwhile, farmers get a local coffee price equal to the world market price less the export tax costs. Although an export tax of initially \$45/bag (about 35% of the world market price) is imposed, the price received by farmers immediately starts to increase above its initial level of \$60 per bag. The export tax is gradually reduced, so that the farm-gate price improves further. The total tax receipts over time are almost 11 billion dollars, which is just enough to pay for the total stock destruction costs (nearly 58 million tonnes are denatured over the whole period) of 4.1 billion dollars and the quota buy-out costs (23 million bags of production rights) of 6.6 billion dollars. After period 5, the imposition of the supply control mechanism is completed. Taxation is no longer needed, and the farm-gate price has doubled. Looking at the evolution of farm-gate and world market prices, it can be seen that consumers in the coffee-importing countries pay the costs of introducing this scheme.

The numbers given in Table 1 illustrate only one possibility out of many, and this is not even the most efficient one. For example, because the quota reduction is realised gradually over several years, quota buy-out is rather expensive in this option. Production rights have to be bought at increasing farm prices. A one-shot quota reduction would substantially save on costs (total costs would have been reduced to 6.2 billion dollars). Moreover, only 21 million bags would have to be destroyed (only the initial buffer stock). Another caveat concerns the elasticity assumptions. The demand elasticities for both the coffee-producing countries and the coffee-importing countries are set to -0.2 , based on a quick scan of the literature. This assumption seems rather conservative, but it may require better empirical validation.

Table 1: A self-financing scheme for doubling producer prices for coffee over a 5-year period

	Period 0	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6
Producing and exporting countries							
Supply	102	108	102	97	90	89	89
Demand	27	25	25	25	25	24	24
Local price of coffee	60	80	85	85	95	104	119
Begin year stock	21	0	0	0	0	0	0
net intervention purchases	0	18	12	7	0	0	0
End year stock	21	0	0	0	0	0	0
Costs of buffer stock destruction	0	2524	991	561	0	0	0
Production quatum			102	97	90	89	89
Export tax	0	45	40	35	25	20	0
Tax revenue	0	2912	2592	2284	1634	1297	0
Importing countries							
Demand	75	65	65	65	65	65	65
World market price of coffee	60	125	125	120	120	124	119

Source: Own model calculations

Changing international power relations

UNCTAD's Integrated Programme for Commodities failed in the 1970s because its implementation was bound to a GATT framework that maximised transaction costs and gave *de facto* veto rights to a few governments of unwilling developed countries (see Section 4). In the above proposal, this framework is abandoned in favour of an independent approach by developing countries that increases their bargaining power. UNCTAD's 1976 resolution and two supportive resolutions of the UN General Assembly in 1974¹⁴ constitute a customary law basis for such a course of action (Chimni 1987), and there is precedence that suggests that WTO rules do not preclude it (see Appendix 2). In any case, the persistence of heavy (and more than 'minimally' trade distortionary) farm income support in OECD countries gives developing countries a moral right to support their own farmers.

Nevertheless, governments of unwilling developed countries will challenge actions like the one proposed above under WTO, regional, or bilateral agreements. Also, they will threaten withdrawal of aid, preferences, and IMF support from countries that would participate in such actions. A crucial condition for success, therefore, is that developing countries build sufficient countervailing power to withstand this opposition. This is also needed to prevent developed countries from free riding on Fair Trade arrangements for expanding their own exports of crops like cotton, sugar, or oil seeds, which can be grown in both temperate and tropical areas. A strategy that developing countries might follow for this purpose could look like this:

- To begin with, developing countries could invite civil societies and willing governments in developed countries to join them in a Fair Trade Coalition, which creates worldwide support for the initiative and for adjusting international law frameworks where needed.
- In addition, governments of producing countries, producer organisations, and civil organisations could form task forces for each targeted crop. These then ask the leading trading and processing companies to co-operate with the Fair Trade arrangement, and apply producer and consumer strikes, NGO pressure and licensing policies to persuade them if needed. Private companies are more sensitive to such pressure than governments are, and private action can not easily be challenged under international trade legislation. Moreover, co-operation by private companies can

¹⁴ On a New International Economic Order and on the Economic Rights and Duties of States.

greatly facilitate the destruction of stocks, introduction of export taxes, allocation of quotas, and management of buffer stocks and warehouses. By choosing private companies as negotiating partners, the strong concentration in the trade and processing phases of many crop chains is turned from a threat into an advantage, while the co-operation of governments of unwilling developed countries becomes less crucial.

- Furthermore, in line with the priorities that follow from their phase of economic development, developing countries could announce that they will no longer co-operate on intellectual property rights, foreign investor rights, tender rules, anti-terrorism, environmental issues (other than through Fair Trade arrangements), or any other issues that developed countries find more important than developing countries, until governments of developed countries that have stayed outside the Fair Trade Coalition promise not to free ride on Fair Trade arrangements for expanding their own exports, and promise to refrain from any economic pressure or legal action to prevent developing countries from co-operating with such arrangements.
- Developing countries could also promise to indemnify all those who will be harmed by legal action or withdrawal of preferential treatment because of co-operation with a Fair Trade arrangement. Moreover, they could announce that they will apply economic sanctions against any country that free rides on an arrangement for expanding its own exports, or that harms, or takes legal action against, a developing country because it co-operates with an arrangement or with applying the above sanctions.
- As soon as the Fair Trade Fund has accumulated sufficient resources, it initiates a scheme for financial compensation of export earnings shortfalls to loosen the grip of the IMF on the policies of developing countries. The Fund can also assist governments in negotiations on debt revision and assume old debts under certain conditions.

A vital aspect of this approach is the coalition with civil organisations and willing governments in developed countries. To motivate these to participate, Fair Trade arrangements should incorporate quality, environmental, and labour standard aspects that citizens in these countries value. Furthermore, developing countries could agree on a maximum for the domestic (explicit and implicit) taxation of the export crops concerned, to assure consumers in developed countries that the higher prices they pay will benefit actual producers.

Wider trade policy context

The Fair Trade Coalition can also serve as a platform for discussing more wide-spread changes that should redress the unfairness in WTO rules whereby poor man's instruments for agricultural protection (tariffs) are restricted while rich man's instruments (direct payments) are exempted. These changes should allow an increase in the profitability of domestic food crops in developing countries, so that the pressure on farmers to overextend the production of tropical export crops is reduced. By way of an example, we present a set of rules that would fulfil these requirements.

- Tariff escalation should be strongly reduced to facilitate off-farm diversification in developing countries.
- All countries should regain the right to support their farm incomes in whichever way they want. This would allow the return to traditional price supports that involve low government cost or—in the case of tariffs—provide government revenue. It should be noted that tariffs can best be applied at the outer borders of customs unions of countries with comparable economic structures, both to reduce the costs of internal trade and to encourage efficient internal division of labour.
- Maximum quotas should be imposed on the exports, and minimum quotas on the imports of developed countries. The trade of a developing country should not be restricted. Imposing trade quotas on developed countries will reduce distortions in world markets more effectively than would banning certain categories of support, since these countries will always find new loopholes to apply supposedly 'non distortionary' supports in ways that do cause trade distortions. In temperate crops like grains, dairy, and beef, quotas can be based on historical trade volumes. With temperate-tropical products like sugar, cotton, and oil crops, a correction factor should be applied to compensate the effects of decades-long unfair competition between developed countries and

developing countries in the markets for these crops. The quotas are tightened or relaxed so as to keep world market prices within desirable price bands. To introduce flexibility and encourage an efficient division of labour, developed countries could be allowed to trade quotas among themselves.

This proposal actually builds on a positive aspect of the Uruguay Round Agreement on Agriculture: the prescription to reduce the subsidisation of agricultural exports by certain percentages. Without the loophole of direct payments, this prescription would have meant a rationing of the room for farm exports, as neither the US nor the EU was able to maintain their existing exports without subsidies. Last but not least, this proposal could help to harmonise the interests of farmers in both developing countries and developed countries. Farmers in the latter are also threatened by global oversupply. The shift from price supports to direct payments, which allows traders and processors to maintain large exports, affects farmer incomes, because the payments do not fully compensate the reduction in price supports (Ray *et al.* 2003). As a consequence, a rehabilitation of price supports may benefit these farmers in developed countries too.

Appendix 1: Coffee model

In order to illustrate our arguments a simple partial equilibrium model was constructed, which reflects the coffee market as shown in Figure 2 in the main text. The supply and demand data of the coffee-producing countries (CPCs) and coffee-importing countries (CICs) for 2000 are given in Table A1. The table also shows the assumed supply and demand elasticities, which are first estimates based on a brief investigation of the coffee-market literature. Given this information about constant elasticity, supply and demand functions are calibrated for the CPCs and a similar demand function is calibrated for the CICs.

Table A1: Base year data and elasticity estimates

	CPCs	CICs
Quantity supplied	102	
Quantity demanded	27	75
Supply elasticity	0.2	
Demand elasticity	-0.2	-0.2

Note: Base year “2000” constructed using adjacent years to arrive at a normal year.
Elasticity estimates based on De Haas (2002).

The quantity supplied or demanded is specified to be only a function of the coffee price. The supply function of the CPCs is equal to

$$q_{CPC}^s = \alpha_0 p^{\epsilon^s} \quad (A-1)$$

where p represents the local price and ϵ^s the supply elasticity. Demand by CPCs is equal to

$$q_{CPC}^d = \alpha_1 p^{\epsilon^d} \quad (A-2)$$

Demand by the CICs is equal to

$$q_{CIC}^d = \alpha_2 p_{wm}^{\epsilon^{di}} \quad (A-3)$$

with ϵ^{di} representing the import demand elasticity and p_{wm} representing the world market price.

Within the model, allowance is made for three policy instruments for the CPCs: an export tax, a production quota, and intervention (buffer stock). The export tax τ links local and world market prices according to the price-linkage equation

$$p = p_{wm} - \tau \quad (A-4)$$

Effective supply q_{CIC}^{eff} is curbed by the production quota \bar{q} as

$$q_{CPC}^{eff} = \min(q_{CPC}^s, \bar{q}) \quad (A-5)$$

The policy-maker can intervene in the market by taking coffee in intervention. Net intervention sales, labelled as is lead to changes in the buffer stock B according to

$$\Delta B = B_{-1} + is \quad (A-6)$$

The equilibrium condition ensuring market clearing is

$$q_{CPC}^{eff} = q_{CPC}^d + q_{CIC}^d + is \quad (A-7)$$

The supply and demand equations are calibrated using elasticity information and information about the base year. To the basic model, as described above, a number of accounting rules are added, including cost equations representing the costs of intervention purchases, the average value of the coffee stock, the cost of destruction of coffee stock, and the cost of buying out quota. With respect to the latter, the conservative assumption is made that the net present value of a unit production right is equal to 4 times its current market price.

Appendix 2: Legal restrictions to supply management: GATT, WTO, and multilateral agreements

International trade regimes place important restrictions on commodity supply management programmes, while also containing a number of loopholes that effectively allow for the institution of corrective measures addressing the problems of structural overproduction plaguing global commodity markets. GATT 1994 in Article XXXVI, in the chapter on Trade and Development provides a legal basis for supply management; such arrangements remain broadly consistent with WTO rules.

Beginning with the original negotiation of the General Agreement on Tariffs and Trade (GATT) in 1947, the adoption and enforcement of intergovernmental commodity agreements was permitted in Article XX (h) as a general exception to the rest of the Agreement, which requires the broad elimination of quantitative restrictions on imports and exports (Article XXI). Article XVII permits state trading enterprises to operate, but only in the limited sense of acting solely on the basis of commercial considerations such as price and availability, rather than the necessity to maintain minimum prices.

Negotiations on trade in tropical products were held in GATT by a group specifically set up for this purpose, ensuring that priority was given to the special concerns of developing countries that depended on one or two commodities for the bulk of their export earnings.¹⁵ GATT 1947 also allowed for the adoption of two plurilateral supply management arrangements in the Tokyo Round negotiations and their inclusion in the 1994 Marrakesh Agreement: the *International Bovine Meat Agreement*, and the *International Dairy Agreement*, taking advantage of the exception clause in Article XX. The Dairy Agreement contained an economic clause on minimum prices: it provided for the establishment of an International Dairy Council with authority to set, maintain, and periodically review minimum export prices for milk powders, anhydrous milk fat, butter, and cheese, based on the regular evaluation of international market conditions and domestic production concerns. The Agreements were short-lived, however, being terminated in 1997 by participating countries with their accession to the World Trade Organisation (WTO). GATT continues to provide a legal basis for subsequent negotiation of such agreements. Article XXXVI states that “there is a need to devise ... measures designed to stabilise and improve conditions of world markets in these [primary] products including in particular measures designed to attain stable, equitable and remunerative prices”. Article XXXVIII on “joint action” states that to this end, member countries may negotiate and adopt international agreements. It emphasises that the adoption of these agreements should provide for improved conditions in world market access for developing country products. GATT 1947 Agreement was brought into the Uruguay Round agreements through GATT 1994.

No separate negotiating group on tropical commodities has yet been constituted within the WTO; issues related to tropical products are now lumped in with all other agricultural issues under the Committee on Agriculture. The WTO Agreement on Agriculture (AoA) builds on general GATT restrictions with the prohibition, in Article 4.2, of all agriculture-specific non-tariff measures, including voluntary export restraint agreements and non-tariff measures maintained through state-trading enterprises, two instruments directly relevant to the management of supply. Significantly, primary agricultural products subject to “production-restricting measures” are included among the exceptions to Article 4.2 that are outlined in Annex 5. Lacking the generosity of the GATT however, these exceptions are only allowed within the restricted time frame of the implementation period, after which a continuation must be negotiated.¹⁶ Article 6.5 permits direct payments under programmes that limit production to be excluded from countries’ commitments to reduce domestic support to agriculture, but only if these payments have minimal trade-distorting effects and effects on production (Annex 2.1), and are not targeted to a particular crop (Annex 2.10). Given these restrictions, direct payments to farmers that are intended to facilitate adjustment from the production of a certain primary product are effectively counted as domestic support. The AoA however fails to explicitly mention or directly restrict the use of supply management instruments such as production quotas or export taxes.

Current WTO rules and practices restrict the definition of a commodity agreement (permitted under the “general exceptions” clause of GATT 1994) to one where both importing and producing countries are party. Subject to interpretation, this strict definition of an “international commodity agreement” may apply only to arrangements that focus on imposing direct controls on exports and imports. Arrangements seeking to restrict exports indirectly, through production controls, may still fall under the rules even in the absence of participation

¹⁵ The focus on tropical commodities within GATT was in line with similar priorities within UNCTAD, where parallel negotiations in the 1970s gave rise to the 1974 *UN Declaration on the Establishment of a New International Economic Order*, which led to the establishment of the International Commodity Agreements.

¹⁶ We note that even though the AoA permits the temporary use of export restrictions in cases of food emergency, current IMF requirements for countries to liberalize internal markets and abolish marketing boards that guarantee minimum prices effectively counter this possibility. The vast majority of developing countries are subject to these requirements through structural adjustment programmes.

by importing and consuming countries; there is historical evidence to support this interpretation.¹⁷ These arrangements, subject to looser rules, are distinguished from commodity agreements in WTO legal text as “plurilateral agreements”.

Finally, we are seeing the extension and amplification of AoA trade liberalisation measures in the North American Free Trade Agreement (NAFTA) and in the draft agreement for the Free Trade Area of the Americas (FTAA). Bilateral and multilateral trade agreements such as these are subordinate to the WTO, and have to comply with the trade rules it sets down; any changes to their legal texts due to the establishment of supply control measures must also comply. Ultimately, any disputes arising from the institution of these same measures likewise would have to be settled through the WTO. NAFTA explicitly prohibits intergovernmental coffee agreements in Canada and Mexico (Articles 702.2 and 702.3), and makes subsequent negotiation of agreements involving other commodities very difficult. A country is required to consult with the others prior to adopting such an agreement, and it must be confirmed as being consistent with NAFTA commitments per that country’s schedule in Annex 302.2. FTAA Articles 7 and 17 in the Chapter on Agriculture, Second Draft Agreement, require the phased elimination of exclusive import/export rights granted to state trading enterprises with regard to agricultural products, and the phase-in of full competition with private traders. Except as otherwise noted, a country is prohibited from adopting any prohibition, restriction, or licensing requirement on the import or export of agricultural products.

¹⁷ The *International Dairy Agreement*, negotiated under GATT but brought into the WTO in 1994 with the conclusion of the Uruguay Round, apparently only included producing countries despite its economic clauses on minimum export prices. Listed as a plurilateral agreement in Annex 4 of the Final Act of the Marrakesh Protocol, any member country could participate. The International Coffee Agreement also provides for the imposition of production controls by producing countries that enter into arrangements with each other, without the explicit participation of consuming countries. In addition, comments by WTO director-general Supachi Panitchpakdi on the problem of global steel oversupply lends credence to this interpretation: he advocated as a solution “the adoption by producing countries of an agreement providing staged reduction in production ... negotiated under the umbrella of the WTO and supported by the establishment of a World Trust Fund to provide adjustment assistance” (Robbins 2003).

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