

Agricultural Trade Reform, Less Developed Countries, and Economic Growth*

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Abstract

This paper proposes that the gains of less developed countries from globalization of world markets are constrained by the agricultural policies in advanced countries. Countries must export to import, and opening an economy to world markets induces institutional change, which facilitates increased rates of economic growth. Drawing upon previous work, we show that developing country agricultural exports increase substantially from the liberalization of agricultural trade, that the effects of reform impact countries differentially because of differences in world trade patterns, and that the dynamic gains from trade can greatly dominate the static gains from trade. These gains also spillover to the advanced countries. We conclude that removing market distortions in advanced countries is in the interest of all countries. If farmers in wealthy countries continue to receive income transfers, those transfers should be non-distorting.

Key Words: trade reform, developing countries, economic growth

I. Introduction

Agricultural reform in advanced economies may be a key factor for developed countries to gain from the globalization of world markets. Countries must export to import, and trade induces institutional changes that can stimulate long-term growth in per capita income. At the same time, because of the political economy of agriculture, farmers in the US, the EU, and the high-income Asian countries will almost surely continue to obtain government support for the foreseeable future. Given this environment, governments should transfer income to farmers with policy instruments that are minimally trade distorting, and provide the smallest incentive to rent seeking.

The focus on the implications of advanced economy reform on developing countries is not as common as may first appear. The case for further reform of agricultural trade is often based on the observation that interventions distort agriculture relative to other

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sectors of the economy. Rectifying this difference can yield major welfare gains. Another justification is that the US, the EU and the relatively wealthy Asian countries erect barriers to limit import competition from each other. Since a major share of total agricultural trade is among high-income countries, lowering these barriers should yield relatively high welfare gains. Another reason for reform is that the high protection afforded agriculture tends to induce trade conflicts. Reducing these conflicts will help achieve greater political harmony, an important factor for continued global economic integration¹.

Much less attention has been given to how agricultural trade reform in advanced nations can benefit developing nations. Because of this, it is becoming more apparent that many governments and civil society groups in developing countries are not only disappointed with the outcome of the Uruguay Round (WTO, p 483), but are skeptical of the benefits to them of any multilateral trade negotiations. Studies by Hertel et al (2002), and Martin and Winters (1996) find developing countries that are *not* net food importers gain the bulk of trade reform benefits from their own unilateral liberalization. These and other studies have not shown the gain to developing countries from advanced economies liberalization in part because such an analysis needs to identify the origin – destination pattern of trade. Agricultural barriers erected by the EU differ from those employed by the US, and as we show below, tend to protect EU farmers from African exports while the US barriers tend to protect US farmers from exports from Latin America and parts of Asia. Thus, not only do the instruments vary by region, but the pattern of trade discrimination also varies by region. The removal of EU trade barriers in agriculture is likely to have a far greater impact on African countries than will the removal of US trade barriers, although the effects will be interlinked as world prices readjust to these reforms.

A common similarity between the EU and the US barriers is that they both tend to protect their farmers from agricultural commodities that are relatively labor and water intensive to produce, while countries such as Japan, Korea, and Taiwan tend to protect their farmers from commodities that are more land intensive, such as grains. Increase exports of labor and water intensive commodities from developing countries increases the likelihood that they will import the more land intensive commodities, and processed agricultural commodities produced in the advanced countries².

It is also likely that the longer-run benefits, though hard to measure, lay in fundamental institutional change that globalization can offer developing countries. Rodrik (2001) suggests that the opening of markets to exports from less developed countries can stimulate a trickle down type of institutional reform. Institutional “backwardness” has long been recognized as a major constraint to economic growth, and barrier to the effectiveness of foreign aid and capital flows (World Bank, 1998).

¹ Josling (1998) lists five factors.

² This view seemed to be more widely shared by authors writing in the 1980s. See for instance Swegle, Wayne (ed.) (1987). U.S. Agriculture and Third World Development: Critical Interdependencies, National Planning Association, Washington, DC, 1987.

The next section focuses on globalization and the developing countries. It is shown that globalization has decreased the poverty rate and the dispersion of real income per capita among the world's nations, though many are still poor. The markets for agricultural exports from developing countries are in developed countries. Finally, we discuss how trade induced institutional change can occur in developing countries as a result of globalization. Section III reports the results of previous work showing the static effects of agricultural trade reform on world agricultural trade. The instruments and the countries most responsible for distortions in world agricultural markets are identified and the effects on trade patterns are discussed. This section is concluded by showing the dynamic gains from trade arising from capital accumulation and total factor productivity, gains that might be expected to be associated with institutional reforms. The dynamic effects are shown to dominate by large magnitudes the static gains from trade. The last major section suggests the use of decoupled policy instruments rather than instruments that distort world agricultural markets as a way to continue transfers to farmers.

II. Globalization and the Developing Countries

II.1. Have Lower Income Countries Benefited from Globalization?

The performance of the world economy in the last quarter of the 20-th century is historically unprecedented with more individuals being pulled from poverty than any previous time in world history. This surge in widespread economic growth is generally associated with the world's second wave of globalization starting around 1960 (Baldwin and Martin, 1999). The second wave shares in common with the first radical reductions in technical and policy barriers to international transactions, and departs from the first in the impacts that these reductions had on trade in goods versus trade in ideas (information). Baldwin and Martin (1999) show that globalization has increased the share of manufactures in GDP for many of the lower and middle-income countries, while lowering the share in advanced country GDP. The interpretation being that, in contrast to the first wave, the second is helping to industrialize at least some countries in the south. Moreover, these countries are shown to have greatly increased their share of total country trade to GDP. This view is important to our later discussion because we suggest that trade in ideas, and the implications to investment, outsourcing of production, fabrication and assembly functions from advanced country firms, requires the development of institutions, which markets use intensively.

The view that globalization is causing growing income inequality as viewed by Pritchett (1997), now appears to be incorrect. Sala-i-Martin (2002, p.16) shows that the fraction of the world population with very low levels of income has been declining over time. Moreover, poverty rates, defined as the fraction of the world's population that live below the absolute poverty line of one 1986 purchasing power parity (PPP) dollar per day has been cut by 1/4-th since the early 1970s, while the poverty line defined as the proportion of the worlds population living on 2 PPP per day has declined even more dramatically, by almost 60 percent (See Figure 1). Some have argued that the poverty rates are irrelevant and that the really important information is the number of people in the world that live in

poverty, the so-called poverty headcount. Converting these rates, the overall number of poor living on \$1 PPP per day declined from close to 700 million in the peak year 1974 to less than 300 million in 1998. Using the \$2 PPP per day definition, the number of poor declined by about 500 million, from 1.48 billion in 1976 to 980 million in 1998.

Figure 2 displays the Atkinson's index of global and across country inequality in income per capita. The across country inequality presumes equal income shares within countries. Thus, the figure suggests that the substantial decline in income inequality starting in the late 1970s is due to a decline in income inequality across countries while the income inequality within countries has remained relatively constant³.

This literature lends strong support to the view that those countries that have become more integrated with the global economy have lowered poverty and reduced income inequality between them and the advanced nations. Nevertheless, substantial pockets of poverty remain. Persistent poverty exists in countries that tend to have a relatively large share of their population engaged in agriculture, and that have not linked their economies to world markets relative to those reaping gains from globalization.

To provide only a partial support for this assertion, the top panel of table 1 presents data on the percent of the population by region by income group living on x dollars per day or less, while the bottom panel shows the percent of the regions total income earned by each of these groups. Of course, Sub-Saharan Africa stands out with over 50 percent of the regions population living on \$2 PPP per day or less. In the lower panel, this income accounts for about 12 percent of the regions total income. The most left-hand column shows that about 19 percent of the world's population (top panel) lives on about 1.3 percent of the world's income (bottom panel). For the ten-year period 1990 to 1999, this region experienced seven years of negative growth in real income per capita with the highest growth rate in 1996 of 1.9 percent. This experience is in contrast to middle-income countries that realized positive growth rates for this entire period, and for the Middle East and North Africa region that experience low but only two years of negative per capita growth rates⁴.

II.2. Can the Potential for LDC Gains Be Inferred from Trade Patterns?

Neoclassical trade theory suggests that differences in the gains from trade should be greater among countries with large differences in their respective resource endowments. The potential for developing countries to benefit from the lowering of agricultural trade barriers in advanced countries should thus depend, in part, on their agricultural export share of total exports, and whether these exports are destined for advanced country markets. Using the GTAP database, these shares are shown in figure 3 for 40 country/regions for the year 1998. These are the country/region definitions used by Diao et al (2002) in their analysis of developing country interests in agricultural reforms under the WTO. The chart shows that agricultural exports accounted for more than 40 percent

³ Sala-i-Martin shows that the removal of China and India from the data set dampens the decline in income inequality but does not otherwise change these overall results.

⁴ Data from the World Bank Development Indicators data set.

of total exports for a seven country/region grouping, eleven that ranged from about 15 percent to over 30 percent, with an average for the entire set of about 10 percent.

Moreover, most developing countries' agricultural export markets are in the North. On average, advanced countries import 65 percent of developing countries' total agricultural exports. Figure 4, taken from Diao et al, 2001, shows the importance of three of the largest markets in the world, (namely, East Asia, represented by Japan and Korea, North America, and the EU), to the exports of agriculture from developing countries. Exports of non-grain crops, such as vegetables and fruits, cotton, sugar, and vegetable oil are largely the domain of developing countries. These are the crops that are relatively labor and water intensive in contrast to the grain exports from North America and the EU. Excluding intra-EU trade, developing countries account for 60 to 80 percent of world exports of these commodities, most of which are exported to the North (Diao et al, 2002).

The chart also shows that the EU is a far more important agricultural market for African countries than is North America. Latin America exports a large share of its agricultural crops, outside of grains, to North America, as do a few Asian countries. While Japan and Korea are known to have relatively high agricultural tariffs, their agricultural import pattern appears to be spread across more countries.

These data reflect protection in the advanced countries. The tariff rate on vegetables and fruits in the EU is twice the level as that in Japan and Korea, and seven times higher than that in North America (USDA/ERS, 2001). The low level of developing countries' agricultural exports in the EU market suggests that barriers to trade are likely the major cause. Thus these data likely understate the potential gains from trade due to differences in factor composition.

II.3. How Might LDCs Gains from Trade Induced Economic Growth?

Countries export products, which embody the services of their resource base to import the products, which embody the services of other countries' resource base. By doing this they realize gains from trade. The extra foreign exchange earned from a relaxation of agricultural trade barriers in advanced countries can help finance the importation of intermediate factors of production that are less costly and more technologically advanced than domestically produced substitutes.

From the perspective of static trade theory however, little can be inferred about economic growth. Removing barriers to trade results in a one-time efficiency gain, but does not necessarily result in an increased rate of growth. Further, these gains tend empirically to be small. Using modern neoclassical growth theory of the Ramsey-Cass-Koopmans variety, Barro and Sala-i-Martin (1995) suggests that trade reform can stimulate foreign capital inflows and provide incentives for increased savings. This increases the rate of transition growth to long-run equilibrium. The rate of growth in long-run equilibrium is unlikely to be different between a trade-distorted and a non-trade distorted economy.

Thus, in order to see a significant impact of trade on growth, one must appeal to endogenous growth theory.⁵ As Roe and Mohtadi (2001) note for the case of Romer's R&D model of endogenous growth, this theory is "institution rich". If any one of several institutions is not present, growth does not occur. Some of the critical institutions include: well working financial markets, protection of property rights, information gathering institutions such as the Internet, and a well functioning legal and judicial system. Openness to world markets affects growth because of scale economies and unit costs of R&D. Numerous empirical studies (Levin and Renelt (1992), Sachs, J and A. Warner, (1995), Barro (1999), Bernanke and Gurkaynak (2001)) find support for the endogenous growth framework and its implications including the important links between trade and growth, and institutions and growth. For our purposes, the critical linkage is how trade can induce institutional reform.

The countries benefiting from globalization have created and transformed institutions that markets use intensively. These institutions are particularly important since the world's second wave of globalization, as Baldwin and Martin (1999) point out, is driven by the tremendous decline in the costs of exchanging ideas (information) as opposed to goods. Thus the establishment of low cost enforcement of physical and intellectual property rights, a well developed system for financing with collateralizable assets, efficient low cost adjudication of financial disputes, development of transparent financial institutions that are open to international competition, harmonization of business codes for goods and services, the unbiased provision of public service to international firms, and the removal of "unnatural" concentration of firms that restrict competition in markets for final goods and factors of production⁶ are all important.

Rodrik (2002) lists the following institutions as critical for development: property rights, regulatory institutions, institutions for macroeconomic stabilization (e.g., managing fiscal deficits), institutions for social insurance, and institutions for conflict management. What is then the link between trade policy and institutional reform? Trade reform entails: the importation of institutions from abroad; membership in the WTO requires the adoption of a set of institutional norms that rent seekers find more costly to change; financial integration raises the premium for macroeconomic stability, the freer flow of information encourages civil liberties and political freedom, government enforcement to protect the rights of foreign investors perhaps induces it to become more inclined to protect the basic human rights of its own citizens as well. These "organizational changes" are in themselves a major source of total factor productivity growth.

Rodrik (2002) notes that no country has developed successfully by turning its back on international trade and long-term capital flows. However, he suggests that it is equally true that no country has developed simply by opening itself up to foreign trade and investment without engaging in fundamental institutional reform. Thus increasing the opportunities for developing countries to increase their exports of agricultural goods creates an opportunity for longer-term growth. Since economic growth appears to be

⁵ This is discussed in non-technical terms by Roe and Mohtadi (2001).

⁶ This latter point is made strongly in Rodriguez and Rodrik's (1999) review of the empirical evidence linking trade reform to economic growth.

“institution sensitive,” and since institutional change appears to be an ex-post response to perceived opportunities (as opposed to an ex-ante response to create opportunities), the removing of barriers to LDC exports offers an opportunity for picking up the pace of institutional reform and reaping the benefits of the potential efficiency gains⁷.

III. The Effect of Agricultural Trade Reform on World Agricultural Trade

This section draws heavily on previous work, much of which appears in Diao et al (2001, 2002). A global general equilibrium model was developed for this work, the details of which can be found in Diao et al (2002). The analysis focuses on the three disciplines: tariffs (market access), domestic support and export subsidies. The analysis decomposes the global effects of a full reform by type of policy and by commodity. The reforms investigated are (1) eliminating agricultural import barriers (tariff equivalents) throughout the world; (2) eliminating agricultural export subsidies throughout the world; (3) eliminating domestic support in the developed countries; and (4) combinations of these scenarios.

III.1. Results of a Static Analysis

Figure 5 shows the effects on the change in the world agricultural price index, *relative to the base* from the static component of the analysis. The height of the first bar shows the effect for all WTO member countries of the elimination of export subsidies, those domestic subsidies deemed to be trade distorting, and tariffs. The index rises by almost 12 percent. In terms of relative importance of the three policy instrument categories, tariffs accounts for over 50 percent of the 12 percent rise in the price index, domestic support for almost 30 percent, and export subsidies for the about 13 percent.

The second bar shows the importance of country groups. The removal of protection in developing countries accounts for about 20 percent of the 12 percent rise. Thus, as expected, the major cause for distortions in world agricultural price is largely due to the policies of the advanced economies. The third column shows which of the advanced countries contributes most to the distortion in world agricultural prices; ranked from lowest to highest they are: Japan and South Korea, the U.S., and the EU. It should be noted that while Japan and South Korea have relatively high rates of protection, they are nevertheless relatively small traders in world markets, even though they are important markets for some commodities for some countries. In 1998, Japan and Korea imported about 12 percent of all agricultural goods traded worldwide, the U.S. and Canada accounted for another 12 percent, while the EU and the European Free Trade Association countries accounted for 42 percent.

A closer look at the effects of these instruments on specific commodities is shown in Figure 6. For the world as a whole, livestock and livestock products (including dairy) trade faces the highest level of import protection and export subsidies in comparison to the other agricultural commodity categories. Moreover, the value of world livestock

⁷ While this is “trickle-down” institutional reform, given that it is so difficult to accomplish otherwise, any significant inducement towards institutional reform is significant.

product trade is almost twice the value of world trade in grain products. Consequently, world livestock product prices rise more than other commodity prices after liberalization. Again, the developed countries influence the rise in world livestock product prices because developed countries dominate world trade in this sector, as well as protect their domestic sectors from import competition.

In terms of trade volumes, free trade results in more trade. Removing all agricultural support and protection results in an increase in the value of world agricultural trade by about 30 percent. The volume of trade rises by about 15 percent (Diao et al, 2001, p.31). Agricultural export values from *developing* countries increase about 27 percent. The developing countries export more vegetables, fruits, oilseeds, and sugar, i.e., crops that are relatively more labor and water intensive than the exports from the advanced countries.

In terms of changes in production levels, the removal of all three forms of interventions (tariffs, export subsidies, and domestic support) causes production increase across almost all agricultural categories in the less developed countries as a group (Diao et al (2001), Table 1-5). The effects on trade volumes are much more pronounced. These are shown in figure 7.

For developing countries in Eastern Europe, the Middle East, Africa, and some in South America, the EU is the largest agricultural export market. The United States and Canada are the largest market for countries in Central and some in South America, as well as for some countries in Asia. Reform thus causes a substantial change in regional trade flows. For two Asian countries (China and Thailand), 50 percent of their increase in agricultural exports is due to liberalizing Japanese and Korean agriculture. For two Latin American countries (Mexico and Colombia) more than 50 percent of their increase in agricultural exports is due to liberalizing US and Canadian agriculture. For twenty-seven of the thirty-five country groups, 50 percent or more of the increase in their agricultural exports is due to liberalizing EU agriculture. Clearly, these results suggest that an open EU market is in the common interest of most developing countries.

The results show that Japan and Korea largely protect themselves from imports from the advanced countries. Japan and Korea account for about 11 percent of world wheat imports, only 3 percent of their wheat imports originate from developing countries. Similarly, Japan and Korea import more than 27 percent of the world's trade in meat and meat products, and only 17 percent of these imports originate from developing countries. The developing countries' largest export market share is in vegetables, fruits, and crops for which Japan and Korea's tariff barriers are relatively low. With the exception of rice, gains to the developing countries from trade liberalization in Japan and Korea are relatively small.

III.2. Results Of A Dynamic Analysis

Section II showed that some countries benefit from globalization, but that the process is linked to institutional change and increased openness. We now move, using the detailed

model upon which the above results above were derived, into a dynamic inter temporal model in which households and firms optimize over time, and savings and the accumulation of capital stocks are endogenously determined (Diao et al 2001). Using the model's analytical structure in the Ramsey-Cass-Koopmans genre where growth in factor productivity is exogenous, we modify the model to link trade to economic growth. Such a framework generates a transition path to long-run equilibrium. The results are considered illustrative of what capital accumulation and growth in factor productivity can contribute to the gains from agricultural trade reform.

The results from this analysis appear in figure 8. Three “sets” of bars appear, one set for the static analysis, one set that accounts for growth in capital stock caused by the inter temporal behavior of economic agents but no growth in total factor productivity (TFP), and the third which allows for growth in both capital stock and TFP. The reported values, in billions of dollars, are equivalent variation and express the amount the consumer would be indifferent to accept in lieu of the policy change.

The results show that the static effects and the first five-year effects restricted to capital accumulation, are modest. This is not an unusual result, as Rodrik (2002) noted. The gains to advanced countries are larger than to the developing country group because their agricultural policies cause greater distortions in their economies. Nevertheless, time is required for the new incentives to encourage households to forego consumption and save in order for the capital stock to accumulate. By year 15, the value has grown to \$6.52 billion. Gains from reform grow over time. Still, in the absence of growth in factor productivity, the longer-term gains are relatively modest.

If the growth in agricultural exports from developing countries leads to an increase in the importation of intermediate capital inputs embodying advances in technology than, as Coe and Helpman (1995), Wang and Xu (1997) and others (e.g., Coe et al, 1997) find, a country can expect to experience an increase in TFP. If, the expansion of trade encourages a country to respond to the new opportunities by creating and reforming those institutions whose services markets use intensively, or as Rodrik (2002) suggests, i.e., institutional reform “trickles” down, then still another source of growth in TFP is possible. Using the modest⁸ estimated value of growth in TFP found by Coe and Helpman of about 0.02 percent per year for the developing countries alone, gives rise to the third set of bars in figure 8.

In this case, the gains to developing countries are far more pronounced, exceeding by a factor of eight in year 5 (or \$10.16 billion) the gains in the no TFP growth analysis, and by factors of over three (\$17.39 billion, and \$21.15 billion) in years 10 and 15, respectively. The relative gain in year 5 is higher than in the latter years because the effect of TFP is to encourage a more rapid accumulation of capital stock earlier in the

⁸ We view this estimate to be conservative because the data set of Coe and Helpman (1995) included many of the world's middle- and upper middle-income countries. It is likely that the technological spillovers from trade expansion in lower income countries that are relatively more technologically and institutionally “backward” will be higher due to catch-up.

transition to long-run growth. In any case, the analysis makes clear that the *dynamic* gains from agricultural trade reform are likely to far exceed the static gains.

Moreover, it is interesting to note that gains also accrue to the developed countries even though we assume that they experience *no* TFP growth due to agricultural trade reform. What is the source of this “payoff?” The developed countries benefit indirectly from the growth in the returns to increased capital flows from the developed to developing countries, and sales of intermediate capital that is induced by the increased investment demand of the developing countries. They also gain from importing the relatively labor and water intensive agricultural goods that they would otherwise have to produce at higher costs. The capital flows result because most developing countries do not have sufficient domestic savings to fully finance their growth in investment demand that is largely induced by their growth in TFP.

IV. Is Agricultural Trade Reform in the Advanced Countries Possible?

Orden et al (1999) conclude their book with a discussion of a scenario for an end to farm programs. They point out that strong market prices are crucial to a best-case reform scenario. The recent weakening of the dollar should help to strengthen US agricultural prices while EU enlargement should place pressures on the CAP to find less trade distorting means to support farm incomes. The economic question is not whether farmers should receive more or less Federal support. Instead, the economic question is to employ policy instruments that support farmers in a way that distortions of domestic and foreign markets are minimal. A secondary consideration is to develop a mechanism for transferring this support in ways that minimizes rent seeking activities that waste resources allocated to lobbying, and the formation of pressure groups that may divide the interests of larger farms from those of small farms.

An attractive feature of the 1996 FAIR act is the “decoupled” nature of its Production Flexibility Contract (PFC), a feature that has carried through the 2002 Farm Security and Rural Investment (FSRI) act in the form of direct payments. While problems with these instruments remain, such as the targeting of payments to lower income farmers, and their non counter-cyclical nature, evidence presented in Burfisher and Hopkins (2003) suggests that these instruments tend to have relatively minor effects on markets.

How minor are these effects? Drawing on the Agricultural Resource Management Survey data set, Goodwin (2002a) and Goodwin et al (2002b), find that the major effect of the PFC payments is to affect land values since the payment is tied to historically allotted base acres in program crops. Using an inter temporal model of the genre discussed in Section III, Roe et al (2003) show that if the inter temporal preferences of farm operators, land owners and the rest of society are similar, market failures are not present, and ignoring any dead weight losses in government tax instruments, then PFC payments received by farmers under the FAIR act appear to only have one major inter temporal effect. This effect is to increase land values by about 8 percent. Of course, these transfers increase the wealth and expenditures on final goods of program recipients. This effect has no affect on markets since the increase in wealth and expenditures by

program recipients is just offset by those being taxed to provide the payments. However, since land is an asset, its artificially higher collateral value could be used to increase farmer's access to credit, and by this avenue, impact the level of production.

If the capital markets farmers access for investment differs from those accessed by the non-farm economy (in part because farmers do not issue financial instruments such as bonds and securities), or if farmers simply have a preference for investing the increment of PFC payments not consumed into their farm operation, then it is possible that PFC payments could affect production decisions. The analysis of this situation showed that while production effects are possible, they appear small and are only likely to persist in the short run. In the short to intermediate run, and relative to a presumed base where farmers receive no direct payments, direct payments tend to cause capital deepening, to increase the employment of farm labor, and to increase agricultural output, but by an amount that is less than 0.2 per cent in the short run with no discernable long-run effects. The only persistent effect is the increase in land values.

The Common Agricultural Policy (CAP) of the EU is the key feature of European agricultural policy. The CAP as originally conceived was a mechanism for shielding EU farmers from the vicissitudes of world markets. It did this by fixing domestic prices independent of world prices and by paying restitutions or variable levies to maintain those domestic prices. The consequence of the CAP policy has been to convert the world's largest agricultural importer of temperate-zone agricultural products into second largest agricultural exporter. The budget implication of those policies, EU enlargement, combined with pressure from the United States and other major agricultural exporters has forced the evolving reform of the CAP. The prominence of the CAP in Agenda 2000 follows from its role in the EU budget—CAP budget cost in the late 1990s averaged almost 50 of all EU expenditures and amounted to almost two-thirds of the budget in the 1980s.

Reforms in 1992 and 2000 contained several initiatives (ERS, 1999). Although the CAP structure has not changed, the reforms have tried to constrain agricultural subsidies by reducing domestic support prices and by converting support from direct price support towards a more broad based income support and supply controls. The Agenda 2000 reforms fix future agricultural support payments are near current levels. This, in spite of the fact that production because of underlying productivity gains, exceeds the growth of EU agricultural demand. At this point, it appears that the reforms enacted will not constrain the budget as much as the EU Commission would like. Getting significant reform of the CAP towards a decoupled non-distorting structure is still a long way off. Those changes that are likely to be made will be driven by the fact that the CAP budget will continually expand beyond what is allocated for it and by political forces of international negotiations.

V. Concluding Remarks

The main point of this paper is that the gains many less developed countries might obtain from the globalization of world markets is constrained by the agricultural policy in the advanced countries, including Japan, Korea, the U.S. and Canada, and most importantly, the EU. We point out that countries must export to import, and to do so is an indirect way of inducing institutional change that can spillover to the rest of the economy and serve to stimulate long-term growth in per capita income.

A review of the effects of globalization show that many of the world's lower income countries have benefited greatly from a greater integration with the rest of the world's economies, with the result that their incomes have increased relative to the increased incomes in the world's wealthy nations. Most of the low-income country markets for their agricultural exports are in the advanced nations. Agricultural policy in the advanced nations is important because these nations tend to protect their farmers from the imports from many of the world's low-income developing countries.

The gains that LDCs can realize from increased trade go beyond the typical static gains accruing from the more efficient allocation of resources. As these economies open to world markets, the opportunity cost of not engaging in institutional reform should become more apparent thus inducing reform. Following the pattern of others, the nature of the reform should be the creation of those institutions whose services markets use intensively, such as property rights, and regulatory mechanisms. Of course there is no guarantee that increase trade will necessary cause this type of "trickle" down reform.

The economic analysis drew upon our previous work, which shows that totally liberalizing tariffs, trade distorting forms of domestic support, and export subsidies will likely cause the index of world agricultural prices to rise by almost 12 percent. In terms of relative importance of the three policy instrument categories, tariffs account for over 50 percent of the 12 percent rise in the index, domestic support for almost 30 percent, and export subsidies for the about 13 percent. In terms of the countries contributing most to distortion in world prices, ranked from highest to lowest, they are the EU, the US, followed by Japan and Korea. However, due to the agricultural trade pattern of African countries trading mostly with the EU, and Latin American and some Asian countries trading with the U.S., the effects of liberalization have differential effects on the world's developing countries. The change in developing country exports to the advanced nations from agricultural trade reform is shown to change in major ways.

We then turned to the dynamic gains from trade. The dynamic gains are shown to dominate the static gains, and to grow over time as capital accumulates. If the opening of agricultural markets in the advanced countries stimulates growth in factor productivity in the developing countries, for reasons mentioned, then the short run dynamic gains exceed the static gains by a factor of 5 in the short run and a factor of 3 in the intermediate and longer run. Interestingly, the advanced economies too were found to experience gains due largely to the growth in capital demand in the developing countries.

Finally, we suggest that the economic question is not whether farmers should receive more or less Federal support. Instead, the question is to employ those policy instruments that transfer support to farmers in way that is minimally distorting of domestic and foreign markets. We cite previous work that suggests the payments under the FAIR act seem to accomplish this purpose, albeit at the effect of increasing land values. Even if the proportion of the direct payments saved are only invested in agriculture, the output effects are in the range of only 0.2 percent.

We thus conclude that the removal of market distorting instruments in the advanced countries in particular is in the interest of virtually all countries. This process is still likely to be lengthy. Whatever the reform process is whether induced by domestic budget pressures or international negotiations, it is not likely to result in substantial reductions in support for farmers in advanced countries anytime soon. We would hope, however, that the reforms move agricultural policies further in the direction of decoupled payments and reduced distortions of trade. The outcome of such policy reforms will benefit all countries.

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Figure 1 Poverty Rates (source: Sala-i-Martin, 2002)

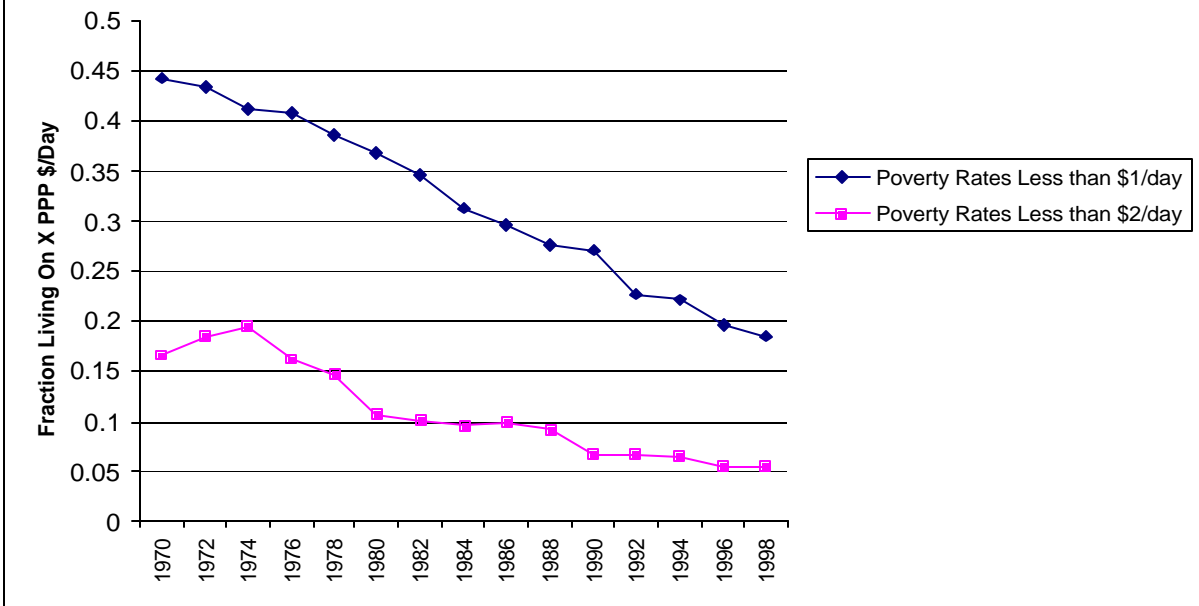


Figure 2 Global Inequality Index (Source: Sala-i-Martin, 2002)

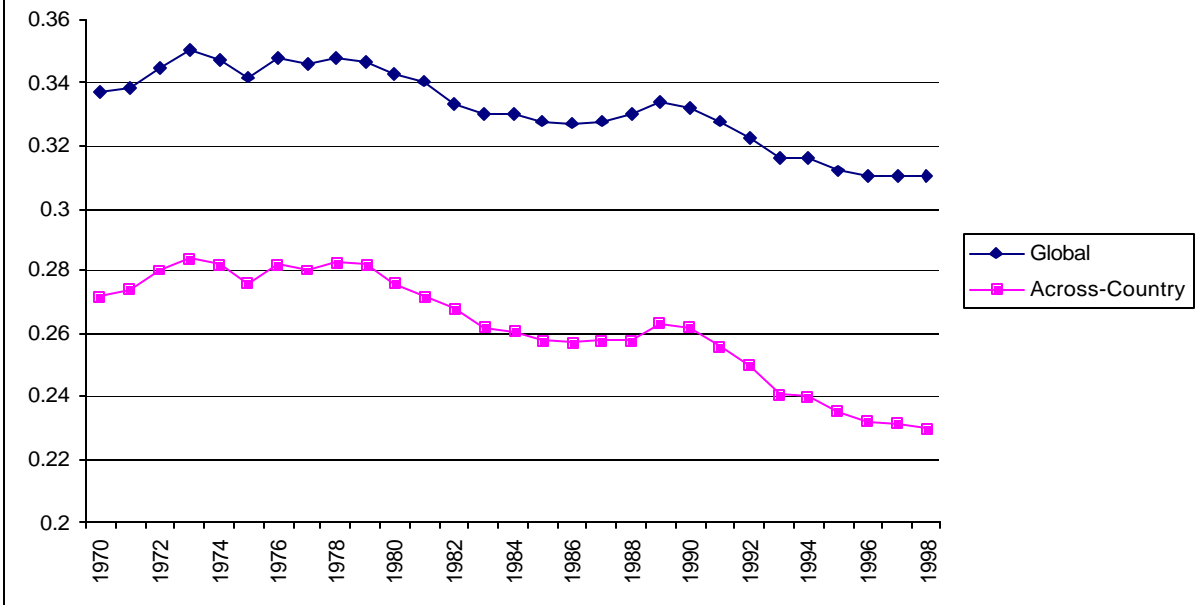


Figure 3: Share of agricultural exports in country's total exports, 1998 (Source: Diao et al 2002)

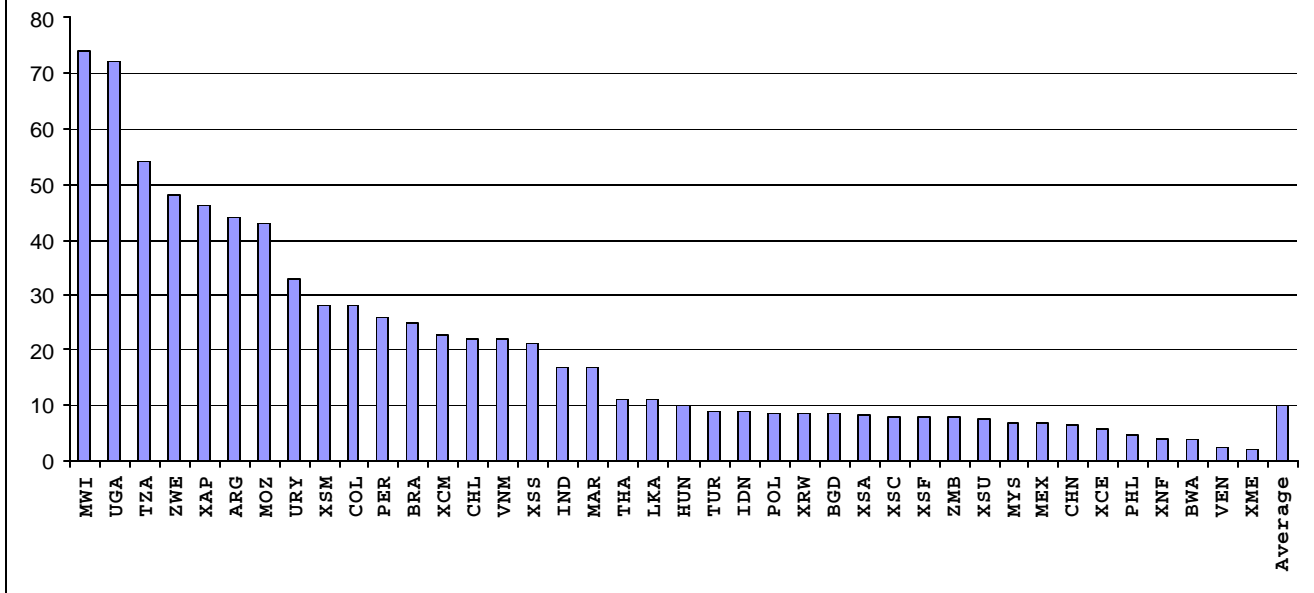


Figure 4: Share of Exports to Japan/Korea, USA/Canada, and EU in Developing Countries' Total Agricultural Exports 1998 (%)

(Source: Diao et al 2002)

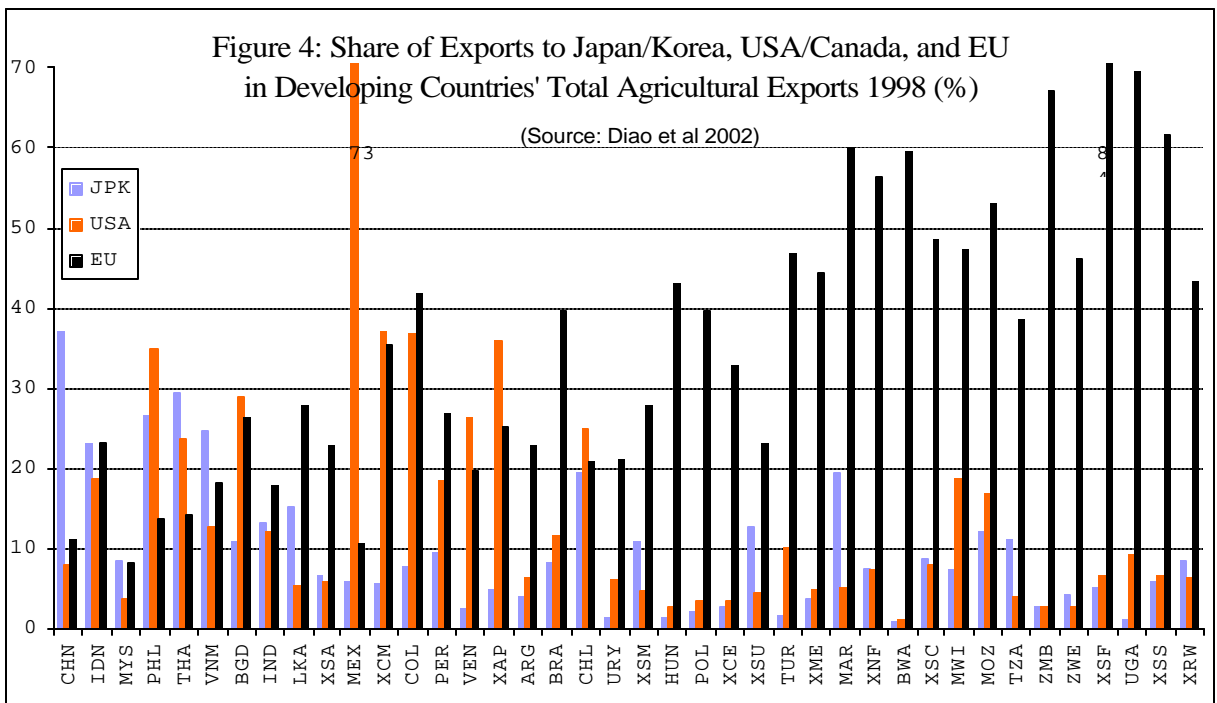


Figure 5 Decomposition of Price Effects of Global Agricultural Liberalization (Source: Diao et al 2001)

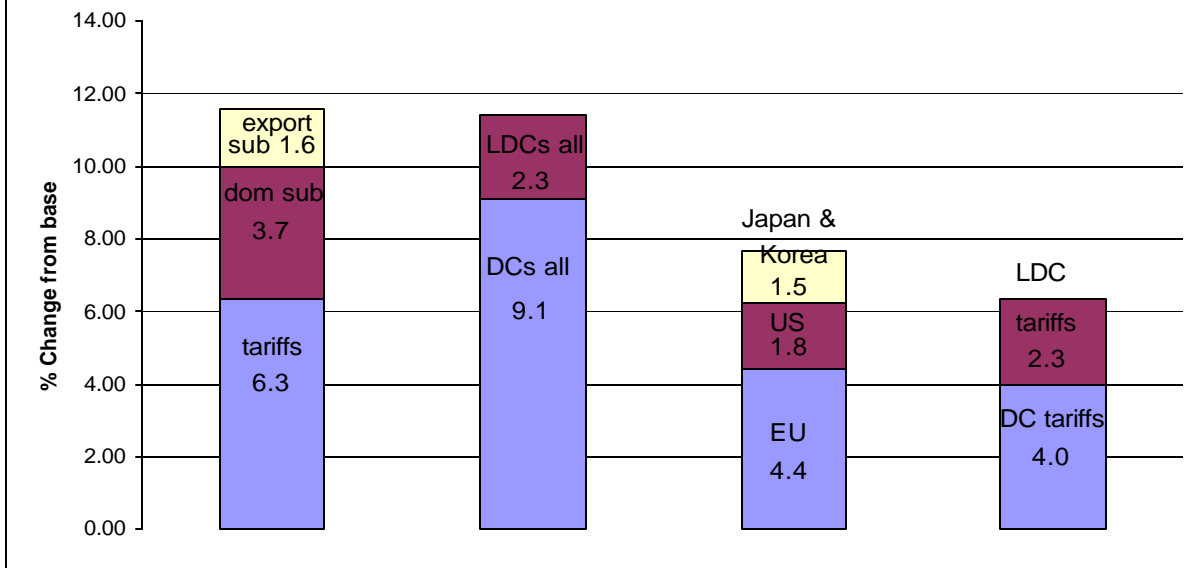


Figure 6 Decomposition of price effects of global agricultural liberalization (Source Diao et al 2001)

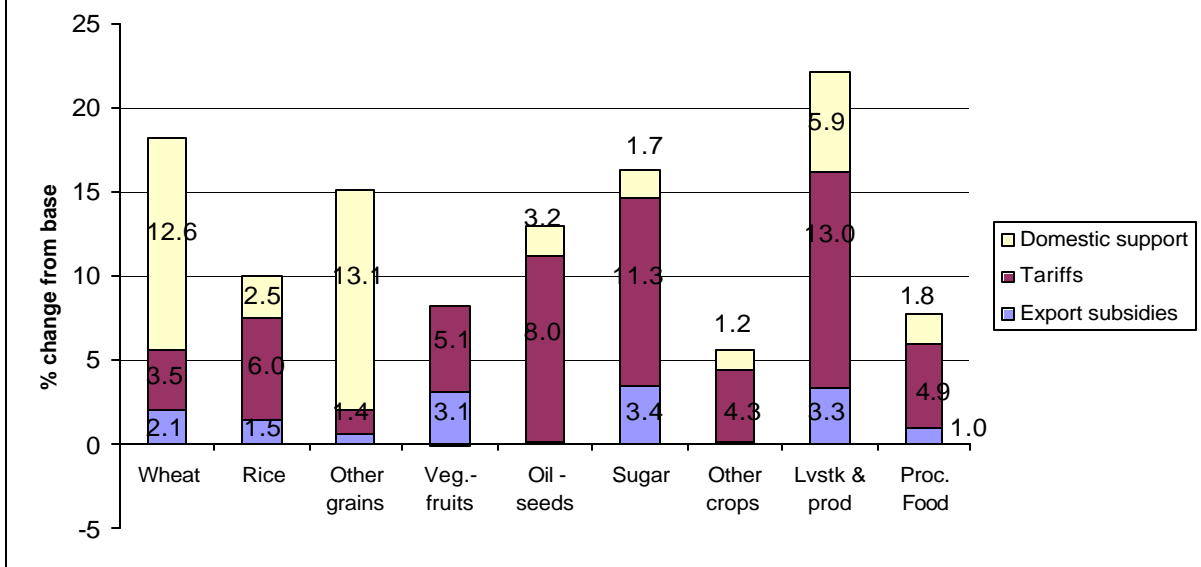


Figure 7: Percent Change in Developing Countries' Ag. Exports by Destination

(Source: Dial et al 2001)

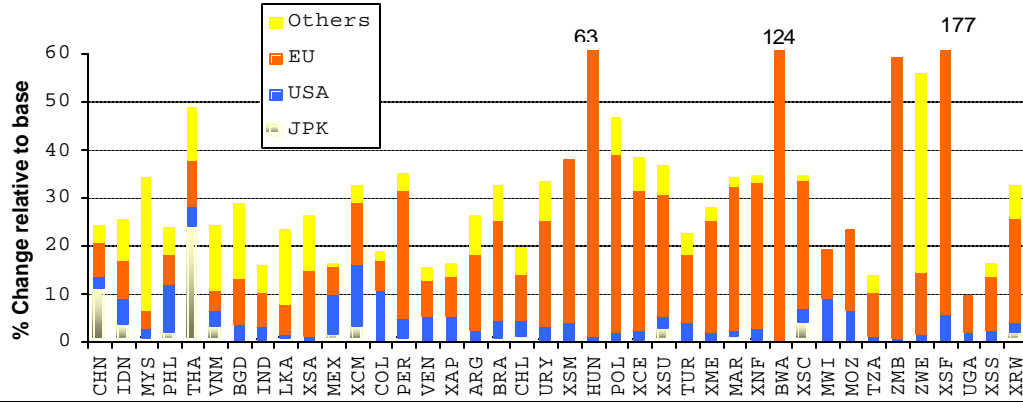


Figure 8 Net Benefits From Agricultural Reform, Billions of Dollars: (Source, Diao et al 2001)

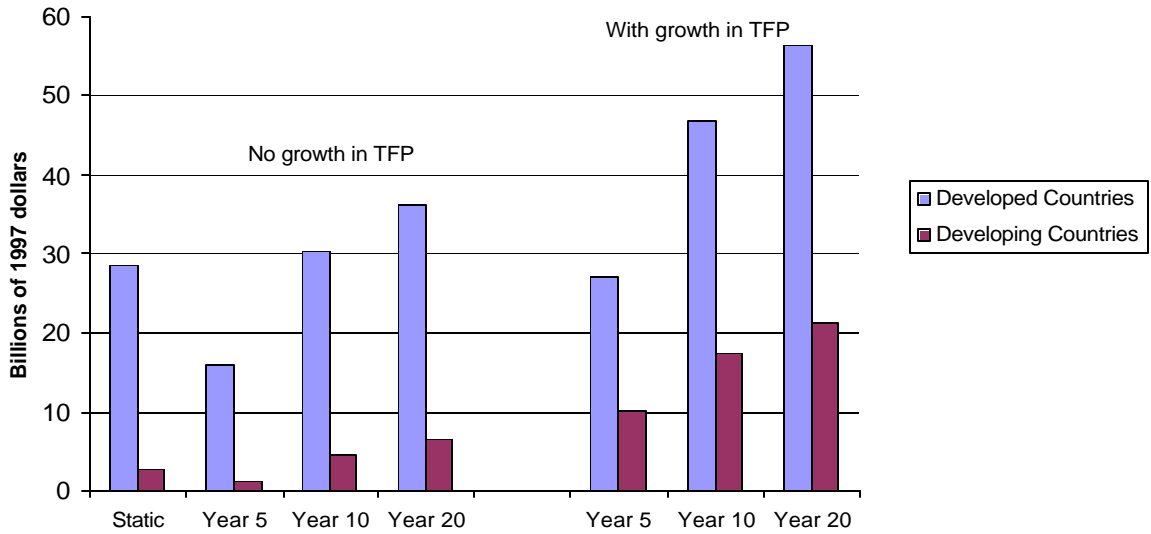


Table 1. *Top panel*: Percent of the world's population living on x 1987 purchasing power dollars per day or less

Bottom panel: Percent the income earned by the world's population living on x 1987 dollars per day or less.

\$/Day in PPP	Latin Am. & Carrib.	Sub-Sah. Africa	South Asia	Mid East & N. Africa	China Kor Mong., HK	East Europe	Former Sov. U	OECD	World
0.5	10.26	14.44	2.70	2.61	1.74	0.34	3.70	0.40	3.78
1	15.23	29.56	8.74	5.17	5.14	0.77	7.00	0.76	8.57
2	22.81	51.79	24.93	10.78	14.21	1.88	13.83	1.44	19.08
4	34.09	73.27	54.84	22.97	34.40	6.10	28.93	2.81	37.61
8	49.67	88.85	83.11	45.85	65.93	24.29	56.77	5.81	59.82
16	68.20	96.17	95.31	74.76	91.44	67.18	83.43	13.41	76.60
32	85.39	98.71	98.80	92.68	98.36	95.43	95.63	32.97	86.22
64	96.19	99.72	99.72	98.11	99.45	99.88	99.58	67.87	94.04
128	99.65	99.98	99.97	99.64	99.91	100.00	100.00	94.43	99.01
256	100.00	100.00	100.00	99.95	100.00	100.00	100.00	99.84	99.97
512	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1024	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

\$/Day in PPP	Latin Am. & Carrib.	Sub-Sah. Africa	South Asia	Mid East & N. Africa	China Kor Mong., HK	East Europe	Former Sov. U	OECD	World
0.5	0.12	0.91	0.16	0.05	0.07	0.01	0.09	0.00	0.06
1	0.35	3.73	1.00	0.19	0.40	0.03	0.34	0.01	0.29
2	1.06	11.83	5.47	0.82	2.15	0.15	1.38	0.03	1.30
4	3.18	27.17	21.50	3.56	9.82	1.07	5.99	0.10	4.81
8	9.00	49.02	50.37	13.70	33.18	9.00	22.60	0.43	12.98
16	22.68	68.95	74.42	38.52	69.01	44.33	52.84	2.13	25.03
32	47.62	82.82	87.97	67.77	87.08	87.00	79.85	10.80	38.86
64	78.05	93.88	95.20	85.17	93.13	99.39	96.72	40.71	61.87
128	96.52	99.31	99.03	94.89	98.22	100.00	99.94	83.26	89.55
256	99.91	99.99	99.91	98.85	99.90	100.00	100.00	99.12	99.42
512	100.00	100.00	100.00	99.94	100.00	100.00	100.00	100.00	100.00
1024	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Shane, M., Teigen, L., Gehlhar, M., Roe, T.L. (2000)

Country groups

ANZ	Australia and New Zealand
JPK	Japan and Korea
ADC	Other Asian developed countries
USA	U.S. and Canada
E_U	European Union and European Free Trade Association
CHN	China
IDN	Indonesia
MYS	Malaysia
PHL	Philippines
THA	Thailand
VNM	Viet Nam
BGD	Bangladesh
IND	India
LKA	Sri Lanka
XSA	Rest of South Asia
MEX	Mexico
XCM	Central America and Caribbean
COL	Colombia
PER	Peru
VEN	Venezuela
XAP	Rest of Andean Pact
ARG	Argentina
BRA	Brazil
CHL	Chile
URY	Uruguay
XSM	Rest of South America
HUN	Hungary
POL	Poland
XCE	Rest of Central Europe
XSU	Former Soviet Union
TUR	Turkey
XME	Rest of Middle East
MAR	Morocco
XNF	Rest of North Africa
BWA	Botswana
XSC	Rest of South Africa Custom Union
MWI	Malawi
MOZ	Mozambique
TZA	Tanzania
ZMB	Zambia
ZWE	Zimbabwe
XSF	Rest of Southern Africa
UGA	Uganda
XSS	Rest of Sub-Saharan Africa

XRW Rest of World