Prospective Benefits from Cotton Subsidy Cuts and New Technologies

BY KYM ANDERSON AND ERNESTO VALENZUELA

WHEN THE World Trade Organization (WTO) was created from the existing General Agreement on Tariffs and Trade (GATT) on January 1, 1995 and the Uruguay Round Agreements were implemented, developing countries initially looked forward to greater access to rich-country markets through reduced agricultural subsidies and lowered trade barriers. It turned out that the commitments made in the Uruguay Round delivered little reform during the six-year implementation period, but hopes were buoyed by the launch of the WTO’s Doha Development Round (DDA) in 2001.

Six years later, bitter wrangling over agriculture policy has brought the DDA to an impasse. If it is not concluded this year, it may be several years before it is finalized or replaced with a new initiative. Not reaching agreement to liberalize would be a great pity, because the potential benefits from freeing the world of trade-distorting subsidies and import barriers are enormous for both developing and high-income countries. Indeed the potential is so great that, in 2004 and again this year, the Copenhagen Consensus Project has included subsidy and trade reform as one of the ten greatest challenges facing the world from the viewpoint of potential opportunities to benefit people in developing countries (see www.copenhagenconsensus.com).

Even if the Doha round is delayed or cancelled, that does not eliminate
opportunities for agricultural subsidy cuts. Unilateral policy reform, encouraged by several WTO dispute settlement cases, could lead to significant farm subsidy cuts.

Moreover, new agricultural biotechnologies have emerged in the last decade that hold potential income-boosting opportunities for farmers in developing countries. If governments permit their adoption, these new technologies could complement subsidy and trade reforms. Any positive change of technology policy in developing countries could boost the welfare gain from forthcoming agricultural policy reforms.

The Cotton Four

COTTON PROVIDES A CLEAR EXAMPLE of such an opportunity. For many developing countries, especially in Africa, in Central Asia, and Pakistan, cotton is a vitally important cash crop. It has received attention of late because four poor cotton-exporting West African countries (the "Cotton-4": Benin, Burkina Faso, Chad and Mali) have demanded removal of cotton subsidy and import tariffs as part of DDA reforms. Cotton subsidies are primarily provided by governments in high-income countries, and part of the US cotton subsidy program has been ruled illegal following a WTO dispute settlement case brought by Brazil. Hence the expectation of some subsidy reform soon.

The removal of all cotton subsidies and import tariffs would boost global economic welfare by an estimated $283 million per year, while raising the price of cotton in international markets by an average of 13 percent. The price rise ensures that all cotton-exporting countries would benefit while net importers of cotton would be worse off. A relatively large benefit would be bestowed on sub-Saharan Africa—$147 million per year, which is no less than one-fifth of the estimated gain for the region from the freeing of all goods markets globally. About two-fifths of that amount would go to the "Cotton-4" (Benin, Burkina Faso, Chad and Mali) and another one-fifth to other West African countries. This is driven by an estimated increase in Sub-Saharan African cotton output and net farm income of nearly one-third, and in the real value of the region’s cotton exports of more than 50 percent.

Removal of subsidies and tariffs would cause cotton output and exports to fall by one-quarter in the United States and to half in the EU, which would raise Sub-Saharan Africa’s share of global cotton exports from 12 to 17 percent, and the share of all developing countries from 52 to 72 percent. Cotton farmers’ incomes would rise by a massive 30 percent in Sub-Saharan Africa and around 40 percent in West Africa in particular.

Both the US and the EU economies would be better off without those subsidies, even though their individual cotton farmers would be worse off. The net gain to the EU is very small, reflecting the tiny size of this primary industry in Western European agriculture. For the US, however, the estimated annual gain in net economic welfare from removing those subsidies is $429 million per year.

While the full reform results outlined here are not likely to materialize in the immediate future, they provide a useful benchmark against which to compare the estimated effects of partial reforms. Two partial reform scenarios are worth considering: liberalization in the United States alone, as a possible response to the outcome of the WTO dispute settlement case brought against it by Brazil; and a broader liberalization consistent with what was agreed at the Hong Kong Trade Ministerial in December 2005 as part of the Doha Development Agenda.

The WTO ruled against the US policies of export credit guarantees and the Step 2 program, which is effectively a subsidy to US cotton exports. If US expenditure on cotton support is reduced by the full amount of the Step 2 payments, this would be equivalent to a one-seventh reduction in the aggregate subsidy to US cotton production. The complaining country (Brazil) expects a reduction also in US cotton farm subsidies, which in 2000-2002 averaged $3.0 billion per year, while in 1992 they were just $2.0 billion. Thus a scenario is one in which not only the Step 2 program is removed but also domestic cotton subsidies are cut by one-third.

The WTO’s Hong Kong Trade Ministerial meeting of the DDA in December 2005 went further: members agreed that in any DDA agreement all cotton export subsidies would be eliminated, that least-developed countries would get duty-free access for their cotton exports to high-income countries by the time the DDA agreements are implemented, and
that domestic cotton subsidies would be reduced faster and more ambitiously than other agricultural domestic support programs. With the DDA now in limbo, that offer is on hold, but it is still worthy of consideration if the DDA is rejuvenated.

Model results for these partial reform scenarios are as follows. First, the national welfare gains and boost to cotton farmers’ incomes are still concentrated in Sub-Saharan Africa and Central Asia, although less so than under full reform. Second, Sub-Saharan Africa’s cotton output and exports would rise only one-quarter as much as under full reform. Third, compared with what Sub-Saharan Africa can expect from Doha cotton reform, US-only partial reform would generate only around three-fifths of the estimated net welfare and net cotton income effects and just two-fifths of the export effects. And fourth, the average price of cotton in international markets would rise by just 4.4 and 3.2 percent in the Doha and US-only scenarios, respectively, compared with the estimated 12.9 percent under full reform.

Genetically-modified cotton would boost yields and incomes

The WTO’s Doha Cotton Initiative stresses, in addition to trade and subsidy reform, the need to boost the international competitiveness of cotton production in low-income countries. One way to do that is for governments of those countries to allow the adoption of new varieties of cotton emerging from the biotechnology revolution. That revolution has produced genetically-modified cotton varieties that generate higher yields and are more resistant to pests and diseases than traditional varieties and have been widely adopted by smallholders in China and India. Yet many governments have been cautious about approving the use of such seeds. Ostensibly this reticence is because of uncertainty regarding their environmental and food safety effects, even though in the case of cotton the food safety risk is very small due to limited use of cottonseed oil within the food chain (see next story).

To simulate the economic effect of global adoption of GM cotton varieties, model simulations were run very conservatively assuming there would be five percent less of all inputs needed to produce one ton of cotton in all GM-adopting countries (except India and sub-Saharan Africa, whose yields have been well below half the global average and so the reduction in input use is assumed to be 15 percent). If all countries adopt GM cotton, global welfare would jump $2.3 billion. Asian developing economies would gain even if they grow little (or no) cotton, because the international cotton price would be lower by an average of 4.1 percent. When expressed as a percentage of regional income, the economic welfare gains to Central Asia, Sub-Saharan Africa and South Asia are estimated to be ten, thirteen and twenty-three times greater, respectively, than the global welfare gains. South Asia’s gains are especially large because it is a large producer and user of cotton.

The estimate of the global benefits of full GM cotton adoption for developing countries is eight times larger than the above estimate of the global economic welfare gain from complete removal of all cotton subsidies and tariffs, and twelve times larger than the global gain from the Doha partial cotton reform simulation. The differences are less marked for sub-Saharan Africa: even so, the estimated welfare gain to sub-Saharan Africa from adopting GM cotton varieties is well above the gain from full removal of all trade-distorting cotton policies. Additionally, this gain is nearly six times that from the Doha partial reform simulation considered above.

The gains to developing countries from GM adoption would be slightly greater in the absence of distortionary cotton policies (12 percent greater, in the case of sub-Saharan Africa). But if these two reforms (GM catch-up and subsidy removal) were to occur simultaneously in sub-Saharan Africa, they would each expand the region’s cotton production and exports and thus reinforce each other to make the net gain larger. The gain to Sub-Saharan Africa would be $370 million.

Furthermore, while some cotton-importing developing countries lose from subsidy reform alone, they gain when they combine that reform with the spread of the productivity-enhancing GM cotton varieties. This example clearly illustrates the symbiosis between the subsidy and trade policies and the technology policies for developing countries.

Adaptation and adoption of new genetically modified cotton varieties are within the powers of developing countries themselves. Unlike the Cotton Initiative in the WTO’s Doha Development Agenda, governments in Sub-Saharan Africa and elsewhere do not need to wait until the round concludes to boost the incomes of their cotton farmers. Putting in place effective regulatory mechanisms for GMOs will allow the process of adaptation and adoption to move forward.

The experiences in China and India indicate that rapid and widespread adoption of GM cotton varieties is possible, including by small farmers, even where public agricultural research is poorly developed and investment climates less-than-optimal. Developing countries with well-developed public agricultural research and extension systems are well positioned to benefit from new biotechnology by working in partnership or in parallel with private biotech and seed companies.

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