

GLOBALIZATION AND ITS EFFECTS ON WORLD AGRICULTURAL TRADE 1960–2050

Economics

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KEYWORDS

Agriculture – Globalization – World Level - Effects

INTRODUCTION

Recent globalization has been characterized by a decline in the costs of cross-border trade in farm and other products. It has been driven primarily by the information and communication technology revolution and—in the case of farm products—by reductions in governmental distortions to agricultural production, consumption and trade. Both have boosted economic growth and reduced poverty globally, especially in Asia. The first but maybe not the second of these drivers will continue in coming decades. World food prices will depend also on whether (and if so by how much) farm productivity growth continues to outpace demand growth and to what extent diets in emerging economies move towards livestock and horticultural products at the expense of staples. Demand in turn will be driven not only by population and income growth, but also by crude oil prices if they remain at current historically high levels, since that will affect biofuel demand. Climate change mitigation policies and adaptation, water market developments and market access standards particularly for transgenic foods will add to future production, price and trade uncertainties.

MAJOR ISSUES

One of the most striking features of economic development is the relative decline in the agricultural sector in growing economies. Also typical for countries with above-average population density is a decline in their agricultural comparative advantage as capital accumulation and industrialization proceed. An export-led boom in another sector, or large prolonged inflows of foreign aid, also weaken the international competitiveness of a country's farm sector. Changes in consumption patterns (the slow growth in consumption of farm products and, in middle-income countries, the move away from grains and other staples and towards livestock and horticultural products) also alter the net trade situation of countries. However, whether that leads to a decline or a rise in the overall food self-sufficiency in and net exports of total agricultural products depends also on productivity growth in farming relative to non-agricultural production (Anderson 1987), and in trends in government assistance to farmers relative to producers of other tradables. In the past, price-distorting policies have gradually changed from disfavouring to favouring agriculture relative to other tradable sectors as *per capita incomes* grow (Anderson 2009); globally, productivity growth has been faster in the farm sector than in other sectors (Martin & Mitra 2001).

A further influence on agricultural trade has been the acceleration of globalization over the past quarter-century. That has been characterized by a rapid decline in the costs of cross-border trade in farm and other products, driven by declines in the costs of transporting bulky and perishable products long distances, the information and communication technology (ICT) revolution and major reductions in governmental distortions to agricultural trade. Together, these developments have boosted economic growth and reduced extreme poverty globally, and in the process altered global agricultural production, consumption and hence trade patterns.

This paper first examines the key drivers of the above developments over the past four or five decades and then draws on that analysis and recent events to suggest likely drivers of—and uncertainties associated with—global food and other agricultural trade trends over the next four decades.

KEY DRIVERS OF CHANGE SINCE 1960

The first part of this section summarizes the structural changes in global agricultural markets and trade since the 1960s. The second part outlines one set of drivers, namely rapid technological changes including those that have lowered trade costs for farm products over the past quarter-century. The third part summarizes reforms to agricultural and trade policies since the 1980s and economy-wide modelling results that suggest those reforms have more than halved the global trade- and welfare-reducing effects of price-distorting policies.

(a) Structural changes in global agricultural markets

One of the most striking features of economic development is the relative decline of the agricultural sector in growing economies. Also typical for countries with a reasonably high population density is a decline in their agricultural comparative advantage as industrialization proceeds (or when another sector such as mining, manufacturing or services enjoys an export-led boom or there is a sustained inflow of foreign aid). There is a wide dispersion across regions of the world in the importance of agriculture in national GDP and employment, in endowments of arable land and fresh water as well as capital per worker, in the availability of modern farm and non-farm technologies that take account of relative factor prices and hence in agricultural comparative advantage. Appropriate indicators of agricultural comparative advantage are difficult to assemble, because government policies that distort food markets are so pervasive and because of the range of technologies made available via adaptive research and development (R&D) investments to suit different relative factor scarcities (Hayami & Ruttan 1985; Alston *et al.* 2009a,b).

Global agricultural trade has grown much slower than trade in other products. Prior to the 1960s, farm products accounted for more than 30 per cent of all merchandise trade globally, but since the beginning of this century their share has averaged less than 9 per cent (Sandri *et al.* 2007).

Since agriculture's share of global GDP has also fallen, a more appropriate indicator of the changing extent to which agriculture is globalized is the share of agricultural and food production or consumption that is traded internationally. Based on a sample of 75 countries that account for all but 1/10 of the world's population and agricultural GDP. Those numbers suggest that agriculture's tradability has increased considerably since the 1960s, rising from about one-ninth to about one-sixth of global production or consumption. However, a glance at the regional data reveals that most of that change is due to increased intra-European trade behind the EU's common external trade barrier, apart from some growth (from low bases) since the 1970s in agricultural imports by Asia and Latin America.

Export orientation, import dependence and self-sufficiency in global agricultural production, by region, 1961–2004 (per cent at undistorted prices). From Anderson (2009, ch. 1), compiled from Anderson & Valenzuela (2008) using estimates of total agricultural production valued at undistorted prices and the FAO's total agricultural trade value data for 65 countries that together account for about 90% of the world's population and agricultural GDP.

Particularly striking is the decline in the extent to which African agricultural production is exported, bringing down the region's agricultural self-sufficiency from 120 per cent to 105 per cent over the

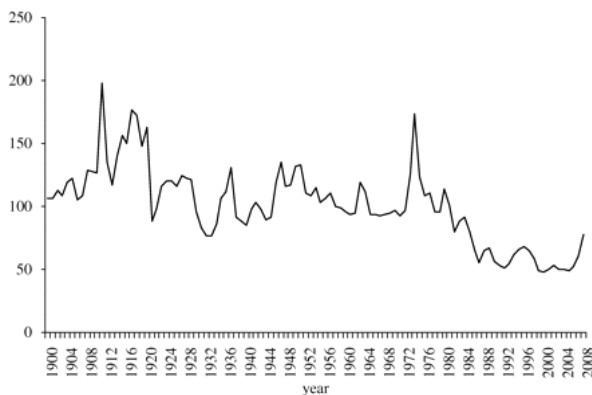
four decades to 2000–2004. It needs to be kept in mind, though, that this could be in part owing to the region's changing comparative advantages rather than to trade taxes. Such a change in comparative advantage could be because of a boom in other sectors of African economies, for example due to the local discovery, exploitation and exportation of mining products, or because of the large sums of foreign aid flowing into the region, either of which would strengthen a country's currency and thus make its farmers less competitive in international markets. Another possible explanation is the faster growth of farm relative to non-farm productivity in the rest of the world, which is consistent with the relatively slow growth in Africa's crop yields.

(b) Technological changes and trade costs

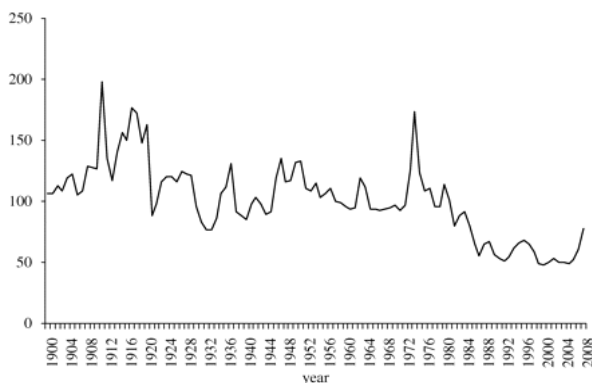
In addition to governmental barriers to trade, there are natural trade barriers caused by transport, information and communication costs. Farm products are relatively bulky commodities, making them costly to transport over long distances, especially if they are perishable. Some of them are desired in fresh form, a desire that can be satisfied only in season. Hence, food prices can vary substantially across time and space for these reasons.

If we define globalization as a decline in costs of doing business across space, there has been, and continues to be, great scope for farmers and food consumers to be beneficiaries of its acceleration. When the relevant space includes national borders, a key effect of such cost declines is to enhance the international integration of markets. A standard indicator of such integration is the trade-to-GDP ratio. Merchandise trade for centuries has grown faster than output for all periods (other than between the two world wars), and the gap has been larger in the 1990s than in any earlier period since reliable data became available. According to **Maddison (2001, p. 363)** merchandise exports as a share of global GDP was only 1 per cent in 1820, 5 per cent in 1870 and 8 per cent in 1913 at 1990 prices. Between 1975–1979 and 2000–2004, however, the share of all goods and services exports as a share of global GDP rose from 19 per cent to 26 per cent (**Sandri et al. 2007**).

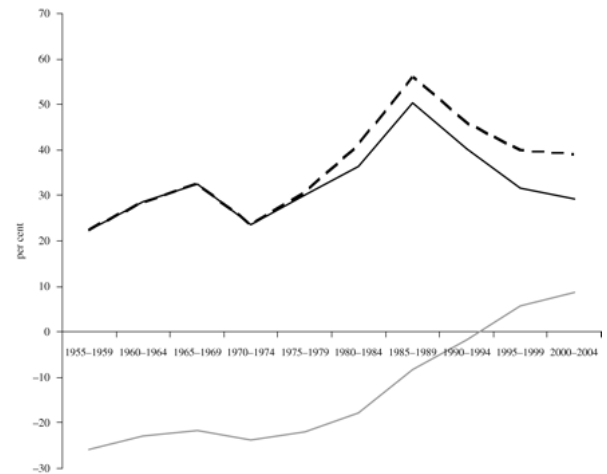
(c) Agricultural trade distortions and policy reforms



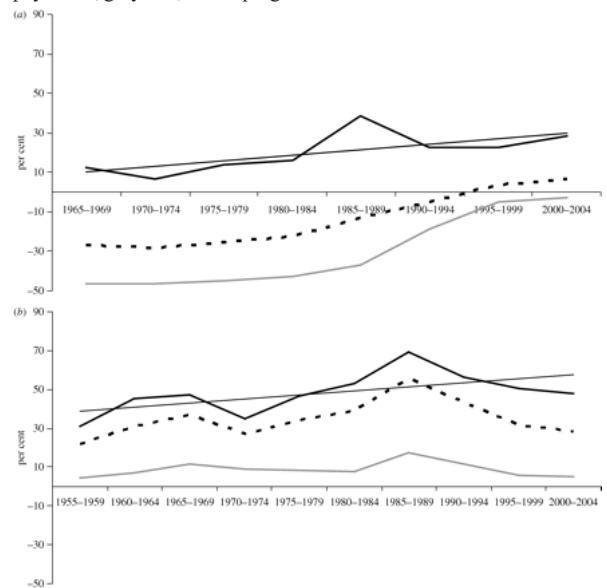
Real international food price index, 1900–2008 (1977–1979 = 100). The deflator used is the price of manufactured exports to developing countries from the five largest HICs (France, Germany, Japan, the UK and the USA). Author's compilation using data from **Pfaffenzeller et al. (2007)**, updated from 2004 with data from www.worldbank.org/prospects. Solid line, real food price index.



Real international food price index, 1900–2008 (1977–1979 = 100). The deflator used is the price of manufactured exports to developing countries from the five largest HICs (France, Germany, Japan, the UK and the USA). Author's compilation using data from **Pfaffenzeller et al. (2007)**, updated from 2004 with data from www.worldbank.org/prospects. Solid line, real food price index.



Nominal rates of assistance to agriculture in HICs and European transition economies and in developing countries, 1955–2004 (per cent, weighted averages). The European transition economies is denoted by the World Bank as ECA, its acronym for (Central and Eastern) Europe and Central Asia. From **Anderson (2009, ch. 1)**, based on estimates in **Anderson & Valenzuela (2008)**. Black line, HIC and ECA; dashed line, HIC and ECA, including decoupled payments; grey line, developing countries.



Nominal rates of assistance to exportable, import-competing and all covered agricultural products (covered products only, and the total also includes non-tradables), HICs and developing countries, 1955–2007. (a) Developing countries. (b) HICs plus Europe's transition economies. From **Anderson (2009, ch. 1)**, based on estimates in **Anderson & Valenzuela (2008)**. Black lines, import competing; grey lines, exportables; dashed lines, total.

CONCLUSION

The above influences of policies focus on long-term trends, but policies also influence year-to-year fluctuations around trend prices and quantities as governments seek to reduce fluctuations in domestic food markets. One way for a country to achieve that objective is by varying the restrictions on its international trade in food according to seasonal conditions domestically and changes in prices internationally. **Anderson et al. (2010b)** capture this phenomenon by estimating the elasticities of transmission of the international product price to the

domestic market, using a geometric lag formulation for each product for all focus countries for the period since 1985. The unweighted average estimate for the short-term elasticity for 12 key products is 0.54, suggesting that within the first year little more than half the movement in international prices of those farm products is transmitted domestically.

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