AGRICULTURAL TRADE AND POLICY

■ **"The long-term downward trend in agricultural commodity prices threatens the food security of hundreds of millions of people in some of the world's poorest developing countries where the sale of commodities is often the only source of cash" (FAO, 2005)**

■ **"High global food prices risk hunger for millions of people. Poor people in developing countries spend up to 80% of their income on food" (Oxfam, 2011)**

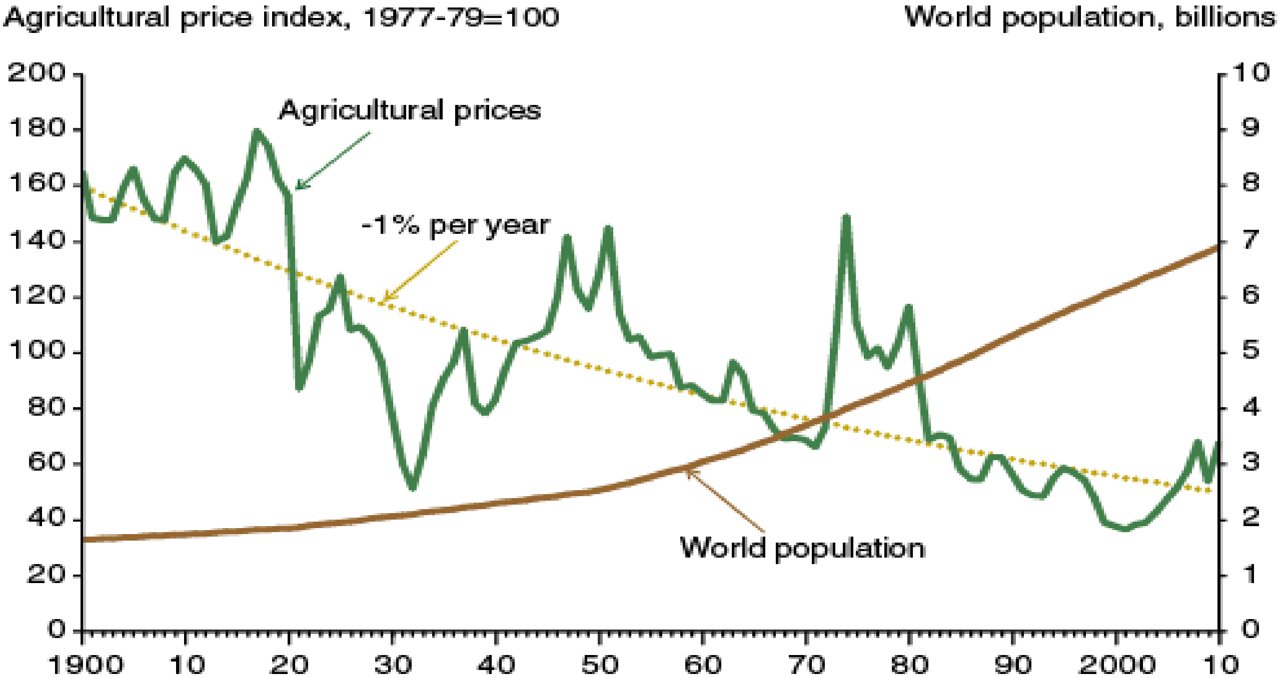
■ **Over past 100 years, world food prices show several striking features:**

- **real price of food has declined over time**
- **real price of food has fluctuated around trend**
- **real price of food has trended up over past decade**

■ **Why?**

- **technological change *vs*. income inelastic demand**
- **farm policies in developed/developing countries**
- **combination of supply/demand/trade policy factors**

Real agricultural prices have fallen since 1900, even as world population growth accelerated



Source: USDA, Economic Research Service using Fuglie, Wang, and Ball (2012). Depicted in the chart is the Grilli-Yang agricultural price index adjusted for inflation by the U.S. Gross Domestic Product implicit price index. The Grilli-Yang price index is a composite of 18 crop and livestock prices, each weighted by its share of global agricultural trade (Pfaffenzeller et al., 2007). World population estimates are from the United Nations.

■ **Consider a small closed economy with two sectors, agriculture and non-agriculture, where productivity growth is equally rapid in both sectors, but food demand grows more slowly over time due to income inelasticity**

■ **In Figure 1, the production frontier moves out equi-proportionately, and given income inelastic demand for food, agriculture's terms of trade decline over time**

■ **Now allow economy to be open to trade – Figure 2**

- if relative prices favor agriculture, economy becomes an exporter food

- if there is unbiased growth, agriculture's share of output remains unchanged

-with growth elsewhere in the world, agriculture's terms of trade will change

■ **Generally, with economic growth abroad, agricultural sector of a small open economy will decline, unless growth is very biased to agriculture; there should also be a decline in agriculture's share of exports with economic growth**

■ **What would make a country a net agricultural importer/ exporter at a point in time?**

FIGURE 1: GROWTH IN A CLOSED ECONOMY

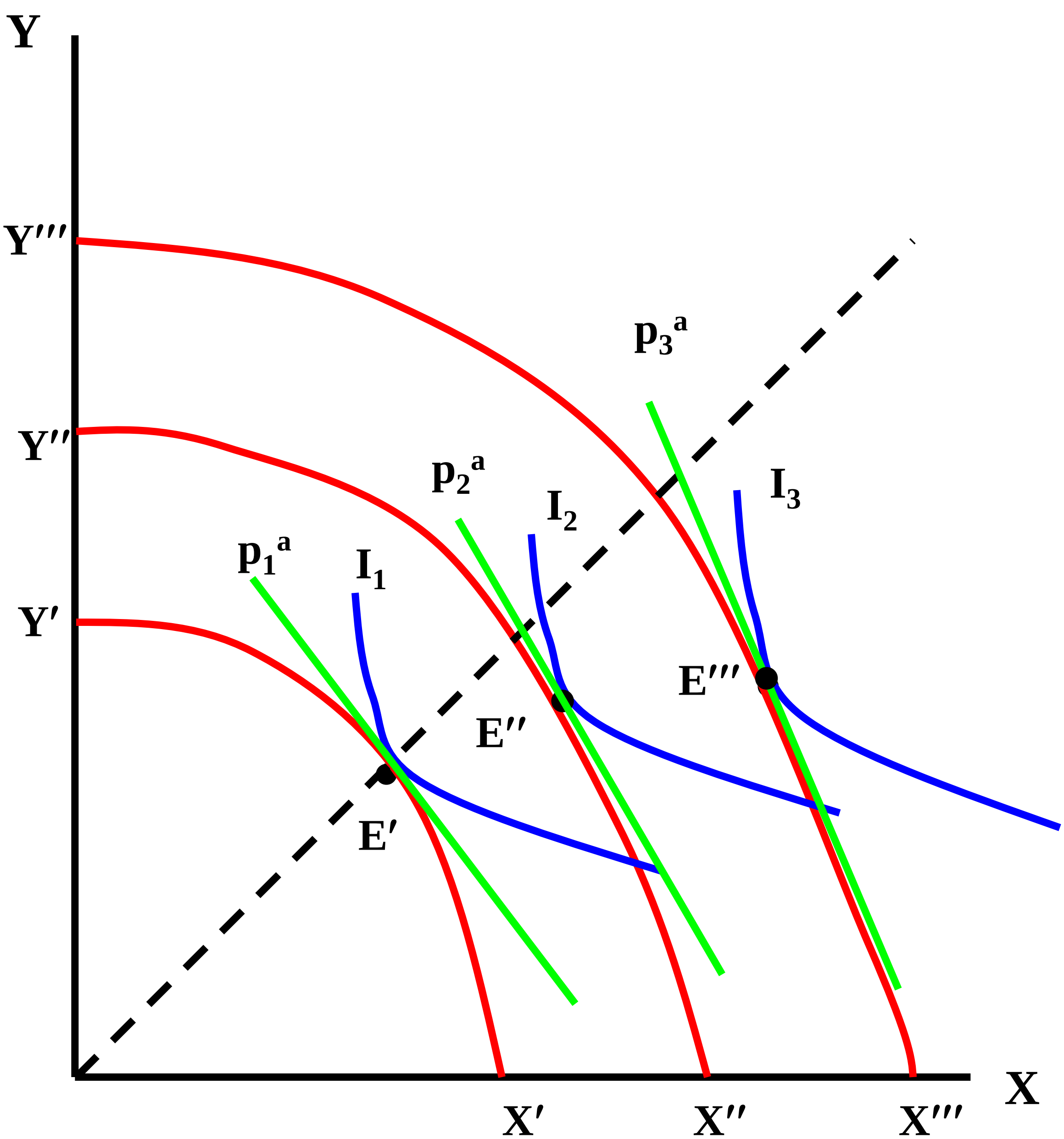
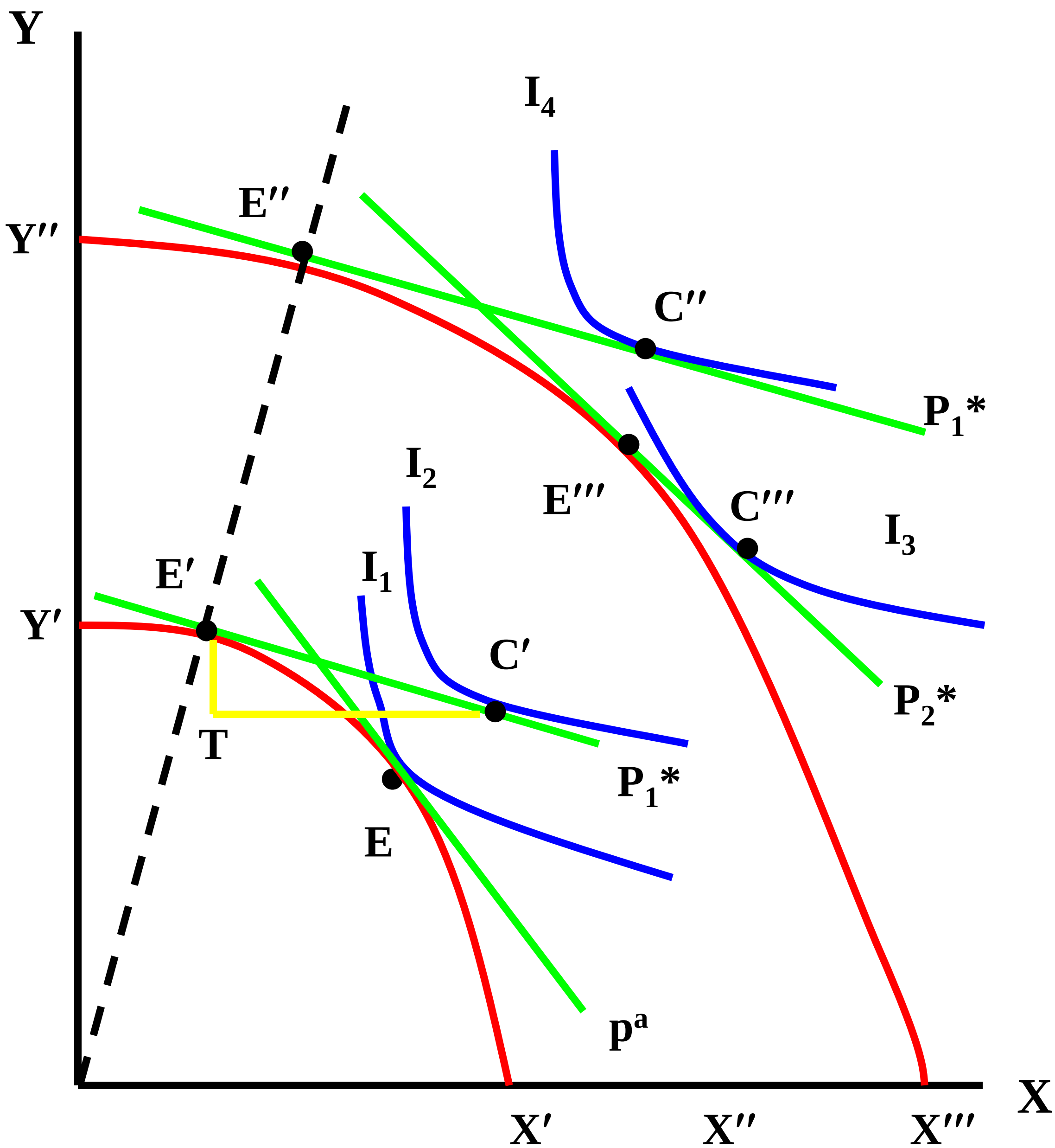


FIGURE 2: GROWTH IN AN OPEN ECONOMY



■ **It should have something to do with *comparative advantage*, particularly relative endowments of capital and natural resources**

- in a *less developed country* with little capital, we would expect it to be an exporter of raw/lightly processed agricultural commodities and an importer of manufactures

- as the capital stock expands, a country should adjust from being an exporter of agricultural commodities to being an exporter of manufactures that are non-resource based

- if a country has large endowments of agricultural land, more capital will be used in agricultural production with high capital productivity

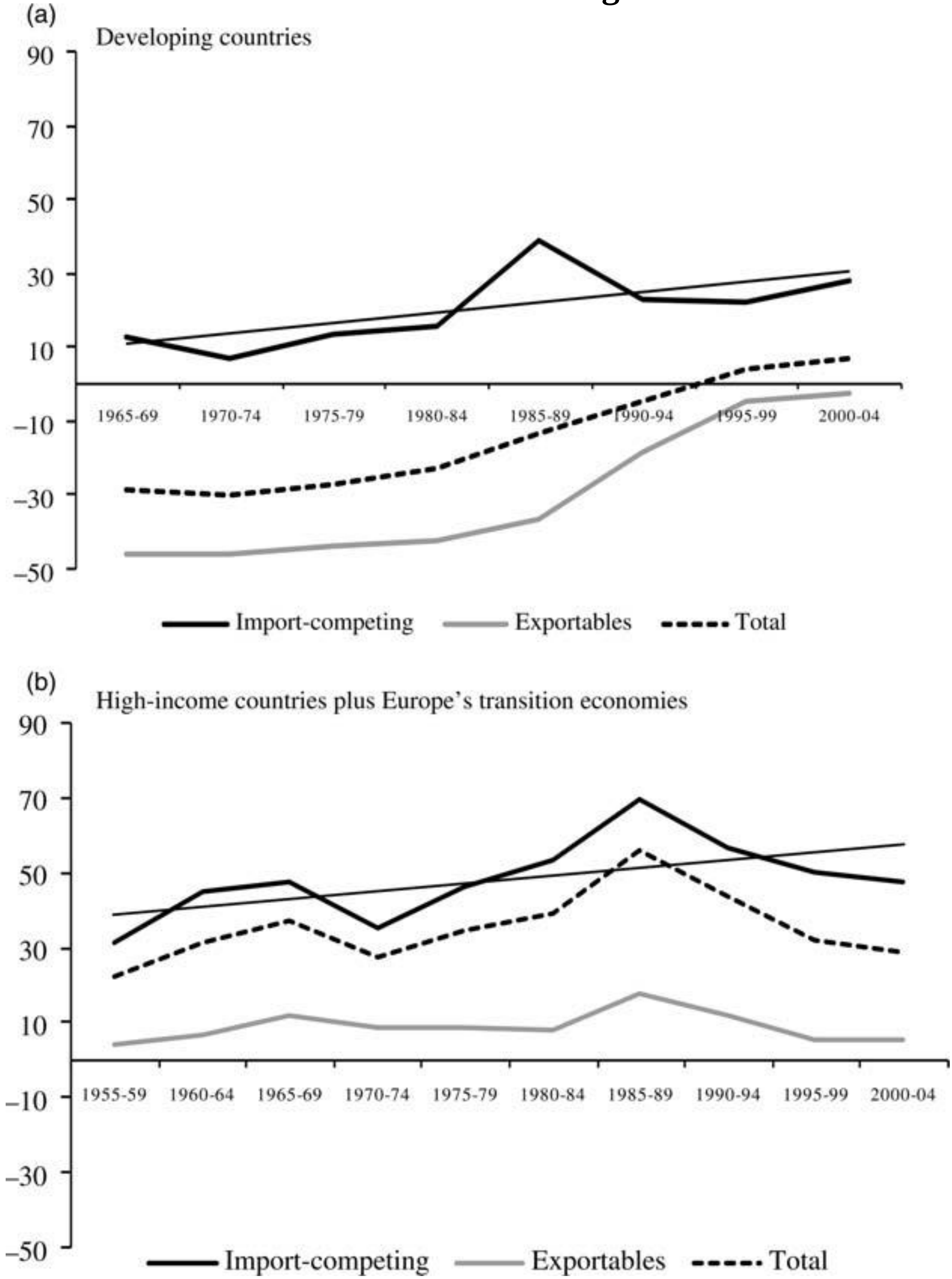
- *densely populated* countries that are poor in natural resources will begin manufacturing at an earlier stage than *resource-rich* countries – once farm land is highly developed, capital substitutes for land

■ **This assumes that markets are free of distortions due to government interventions**

- protection of agriculture accelerated significantly in the post-war period in advanced industrial economies, and spread to rapidly developing middle-income economies

- historically, developing economies tended to discriminate against agriculture, but have become more protectionist

Nominal Rates of Assistance to Agriculture



Source: Anderson (2010)

■ Due to protection of developed country markets from fluctuations in world prices, any fluctuations in their production have been "exported" to the world market – this has exacerbated the decline in agriculture's terms of trade and has affected instability

■ In developing countries, lower world food prices have harmed food exporters and benefited food importers, i.e., rural vs. urban poor

■ What has caused real price of food to increase over past decade?

(i) global changes in demand and supply

- **emerging economy demand for high-protein foods**
- **declining rates of yield growth**
- **biofuels demand 2008-10 accounted for 11% of grains and oilseeds production, forecast to reach 15% by 2021 (FAO, 2011)**

(ii) trade policies - many countries used export restrictions in 2007-08: Argentina, Russia and Ukraine (wheat), India, Vietnam, China, and Pakistan (rice)

■ In developing countries, higher world food prices benefit food exporters and harm food importers, i.e., rural vs. urban poor - however, export restrictions have hurt exporters and intensified harm to importers

Welfare Effect of Export Taxes

- If several countries use export tax, shifts up world supply curve, world price increasing to W_2, domestic price in exporting countries falling to P_2

- Global effects of export tax:

  - importers loss of consumer surplus = –(a+b)

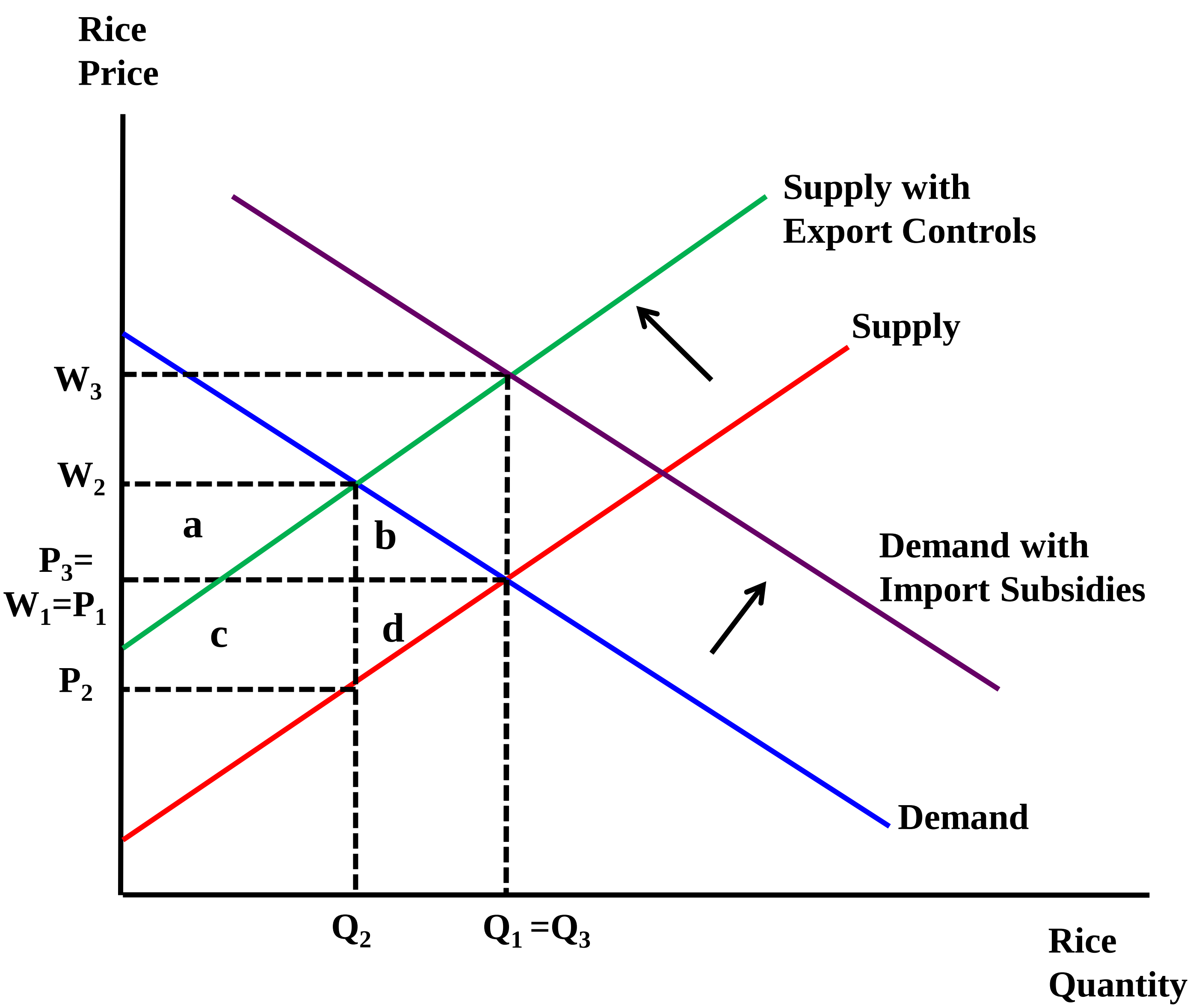
  - exporters loss of producer surplus = –(c+d)

  - exporting government tax revenue = +(a+c)

  - deadweight loss = -(b+d)

- Exporters gain only if a > d, but importers clearly lose as they transfer income to exporter

Effect of Export Restrictions



- **If enough countries adopt trade policies, end result is increased world food price instability**
- **"…export restrictions play a direct role in aggravating food crises…" (Pascal Lamy, Director General of WTO, 2011)**
- **40%, 19% and 10% of 2007-08 spike in rice, wheat and maize prices respectively due to trade policies (Anderson and Nelgen, 2012)**
- **Unless countries cooperate over not using trade policies, each has unilateral incentive to intervene, but collectively no better off**
- **Solution to prisoner's dilemma is cooperation via a self-enforcing agreement, i.e., the WTO**
- **Current Doha Round pushing for reductions in tariffs and disciplines on export subsidies**
- **Developed countries also pushing for tighter WTO disciplines on export restrictions – but rejected by exporting developing countries**