
HIGHLIGHTS

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# RETHINKING TRADE AND TRADE POLICY

## Gomory, Baumol, and Samuelson on Comparative Advantage

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### Rethinking Trade and Trade Policy

Ralph Gomory and William Baumol (2000) and Paul Samuelson (2004) have recently raised concerns about the future impact of international trade on the U.S. economy and national income. Having Messrs. Gomory, Baumol, and Samuelson, whom I refer to as GBS, speak out on trade is an important and significant event. Gomory is president of the Alfred P. Sloan Foundation. Baumol is a renowned microeconomic theorist and former president of the American Economic Association, while Samuelson is one of the originators of the modern theory of comparative advantage that is widely used to explain and justify international trade (Samuelson 1948, 1949).

These observations lead to two points: Point 1 is that GBS's questioning of current trade developments has nothing to do with "protectionism." GBS are strongly in favor of trade, believing there are gains to be had by all. What is open to question is how the size of those gains and their distribution across countries may change over time. That raises critical policy issues regarding what can be done to maximize the U.S. share of gains from trade and hold on to it. This issue is their ultimate concern.

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Point 2 is that GBS are microeconomic and trade theorists. They use pure trade theory, which justifies current trade policy, to question some commonly held beliefs. Empirical critiques that focus on jobs and the trade deficit are not enough to change trade policy. The critiques must also be accompanied by theoretical argument, which is what GBS have provided.

## The GBS Contribution to the Trade Debate

The new issue raised by GBS is the dynamic evolution of comparative advantage and the resulting impact on the distribution of gains from trade. The theory of comparative advantage says that there are gains from trade for the global economy as a whole. However, the distribution of those gains between countries depends on demand and supply conditions that determine the terms of trade (i.e., the relative price of imports and exports), and these conditions can change.

One critical factor is the global pattern of demand. A country will benefit more from trade if international demand for its products is strong, as this will drive up the price of its exports. A second factor is the evolution of supply. It is possible that rapid supply growth on a global basis can harm a country by driving down the price of its exports.

In the post–World War II period, the United States did relatively well from trade: global capital was scarce, demand for capital goods was strong, and there were relatively few capital goods suppliers. That meant the United States enjoyed favorable terms of trade and captured a large share of the gains from trade. The question is, will this continue over the next 50 years?

The earlier work of Johnson (1954, 1955) and Bhagwati (1958) focused on the effects of domestic technological advances on the terms of trade and the distribution of gains from trade. GBS change the focus and examine the implications of economic catch-up by trading rivals. It is commonly assumed that all countries benefit from a country's technological progress, which expands the global production possibilities frontier (PPF).[1] However, it turns out that, while it is true that the global PPF expands, it is not necessarily true that all countries benefit from the expansion. This is an important theoretical finding.

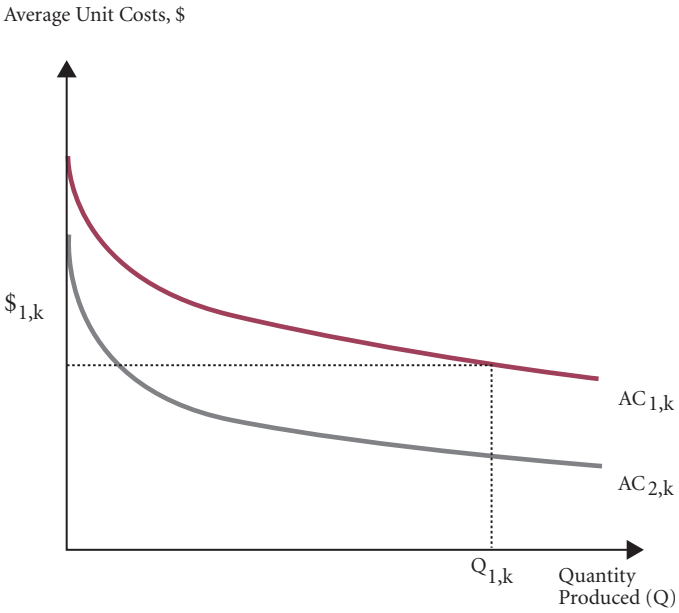
Samuelson's concern, developed in the context of the debate over international outsourcing and trade with China, is that increases in productivity of foreign trading partners may diminish the United States's share of gains from trade. Gomory and Baumol explore similar themes in an environment in which firms also have internal economies of scale, so that average unit costs fall as the volume of production increases. Like Samuelson's model, their context is a world of full employment—the trade problems that they identify are not due to unemployment—and introducing unemployment only compounds their concerns.

Economies of scale mean that each good is produced by one country only. Gomory and Baumol assume that all countries have access to the same technology. Which country produces what goods depends on which is first to move down its cost curve and gain a cost advantage that locks out other producers. Lockout means that multiple equilibria are possible and that the prevailing equilibrium depends on which country gets a head start in a particular industry. Multiple equilibria mean that it is only by chance that the prevailing equilibrium maximizes global output, so the allocation of production across countries may be globally inefficient.

The inefficiencies worsen if the countries have different cost curves. Cost differences can exist because of differences in technology or "external" economies of scale arising from agglomeration effects.[2]

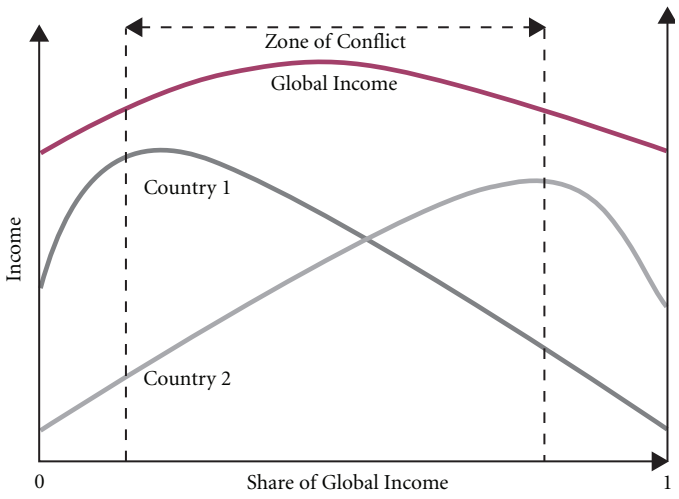
This situation is illustrated in Figure 1, which shows the average cost curves for industry k in countries A and B. The aver-

**Figure 1 Average Unit Costs in Industry k for Countries 1 and 2**




*Source:* Authorís illustration

**Figure 2 How Trade Can Become a Source of Conflict as Country Incomes Converge**




*Source:* Author's illustration

age cost for industry k in country A lies above that of country B. Yet, country A can become the global producer if it gets a head start and is the first to move down its average cost curve, thereby gaining a competitive advantage and locking out the new entrant (country B).

In sum, where cost curves differ across countries, world output can be reduced for two reasons: (1) the country with the lowest cost production technology may not produce; and (2) production may be maldistributed globally (some countries producing too many types of goods and others producing too few), thereby resulting in inefficient exploitation of economies of scale.

In addition to giving rise to potentially inefficient global-production patterns, Gomory and Baumol show that increasing returns to scale (IRTS) can give rise to trade conflict as country incomes converge. This argument is illustrated in Figure 2. Assuming that two identical countries have identical technologies and demand, global income is maximized when the two countries have the same number of industries and each country produces half of world output. However, individual country income is maximized when the country has more than half of the industries. This means that a zone of conflict exists when reallocating production between countries increases global income, but one country benefits at the expense of the other.

The moral of the story is twofold. First, countries do not benefit from autarky (self-sufficiency) because they lose the benefit of economies of scale. Second, countries still want to retain a more than proportionate share of industry, as this objective restricts global output, drives up prices of goods, and increases income. The implication is that losing too much of its industrial base is bad for a country's economy, although it might be good for the global economy. Correspondingly, a country that has disproportionately few industries has an interest in engaging in strategic policy to attract more industries, thereby gaining both scale and terms of trade improvements.

## Policy Implications of GBS's Critique

The central focus of Samuelson's analysis is the economic implications of technology catch-up in other countries. For Gomory and Baumol, it is the implications of loss of the industrial base and of industry transfers to other countries, both of which have dramatic implications for trade policy. Traditionally, policy has been thought of in terms of tariffs, quotas, and export subsidies. Now, policy needs to be reconceptualized in terms of forces driving industrial and technological development within countries, and it must account for the possibility of rivalrous strategic policy between countries.

Technology transfer and catch-up are particularly critical for Samuelson, while strategic trade policy is critical in Gomory and Baumol's story; i.e., equilibrium in the presence of IRTS is potentially quite fragile and creates ample room for economic conflict between countries. Given the existence of multiple equilibria in which the distribution of gains from trade depends on the particulars of the prevailing equilibrium, countries may have an incentive to try and change the equilibrium.[3]

Relative productivity decline and loss of technological leadership play an important role in the GBS story. Most immediately, this raises questions about the wisdom of international outsourcing in industries where the United States has had a comparative advantage historically and been an exporter. Such outsourcing involves technology transfer. Although companies benefit from outsourcing by earning foreign profits, outsourcing can diminish U.S. national income if it transfers technology that increases competition versus U.S. exports.

Outsourcing also has some parallels with offsets, which are a way that one country can capture industry from another and they are, therefore, very troubling from a national-interest perspective.[4] However, companies are much less troubled by offsets because they win the order and then earn profits on foreign

production. This highlights the divergence between the company and national interest.

Within the GBS framework, technological leadership is key, and there are signs already that the United States may be slipping. This trend suggests that the United States needs to bolster public expenditures on science education and research and development (R&D). Additionally, tax law should be structured to encourage companies to undertake their own R&D spending and to invest in the latest technologies and equipment. What was viewed previously as domestic policy is now part of trade policy in the new era of globalization.

Not only does globalization enhance the significance of science and technology policy, it also adds new difficulties. Profit maximization by firms contributes toward the maximization of global output, but it does not necessarily maximize national output. This divergence between the national interest and interests of corporations is not yet understood by national policymakers.

These observations point to the need for a new policy agenda that addresses corporations and is currently absent. Hence, the need for national policies that change corporate behavior by realigning profit maximization with the national interest.

In this regard, there may be important differences across countries. American corporations are free to choose business strategies on a global basis, without regard to the national interest. In contrast, the Chinese government exerts significant control over corporations, and the national interest is factored into business strategy. From a national perspective, that means China is advantaged relative to the United States, although shareholders in Chinese corporations are not as well served as those in American corporations.

A third area needing policy attention is exchange rates. GBS assume that exchange rates are valued at purchasing power parity. However, significant costly distortions arise if exchange rates deviate from this value. In a world without IRTS, undervalued exchange rates result in deviations of production from comparative advantage. In a world with IRTS, exchange rate undervaluation can be used to permanently change the equilibrium and lock in new patterns of global production (Palley 2003a).

In the presence of unemployment (which is assumed away by pure trade theory), a country can use undervalued exchange rates strategically to poach aggregate demand and reduce unemployment at the expense of other countries (a "beggar-thy-neighbor" remedy for unemployment[5]). In some cases, countries are strategically manipulating their exchange rates (especially the East Asian economies) and the United States is being outgamed economically—losing industries and racking up large trade deficits that carry future burdens. Other forms of strategic policy are domestic procurement and labor exploitation for the purposes of gaining trade advantages.

A legitimate way of lowering business's costs concerns the method of providing health and social insurance. Insurance is a job cost in the United States that raises the cost of production, competitively disadvantages U.S. producers, and provides an incentive to shift production offshore. Health insurance that is provided through a national insurance system and funded by federal tax revenues can potentially reduce this incentive.[6] The same situation holds true for Social Security funding, which suggests partially funding Social Security with general tax revenues.

In sum, GBS's trade analysis suggests a collection of policies that establish the right economic "structure" and "atmosphere." Structure refers to the law and rules, which should provide incentives for firms to innovate and invest, and for workers to improve their skills. It should also ensure that the interests of corporations are aligned with the national interest. Atmosphere refers to business conditions that are favorable to domestic business performance, such as the promotion of full employment and the maintenance of competitively valued exchange rates.

## Parallel Macroeconomic Analysis

GBS's analysis of trade is based on pure trade theory. As such, it assumes long-run equilibrium marked by full employment and balanced trade. Their microeconomic analysis can be complemented by conventional macroeconomic analysis that allows for unemployment and trade deficits. Such macroeconomic analysis echoes their concerns and raises additional concerns about economic stability and the character of international competition.

With regard to macroeconomic impacts, the record trade deficits of the last several years have contributed to making the economic recovery from the last recession the weakest since World War II. According to the U.S. Commerce Department, the rising trade deficit directly reduced GDP growth by more than 25 percent between 2001 and 2005 by channeling spending to foreign rather than domestically produced goods (this reduction excludes additional indirect losses). Based on research by Bivens (2004) and by Robert Scott of the Economic

Policy Institute in Washington, D.C., I estimate that 6.6 million job opportunities were embedded in the trade deficit.[7] The implication is that, instead of creating jobs at home, a significant chunk of consumer and investment spending has leached out of the U.S. economy in the form of spending on imports.

The large U.S. trade deficit also has adverse long-run macroeconomic effects. Dollar appreciation has structurally weakened the U.S. industrial base and made the future task of trade deficit adjustment more difficult, as the United States may now lack the capacity needed to produce the manufactured goods that it now imports.

These effects on manufacturing jobs and investment provide concrete support for GBS's concerns. Manufacturing is key to long-run prosperity because it is a major center of productivity growth and innovation. When U.S. manufacturing moves offshore, associated R&D can move too, thereby further diminishing future innovations at home.

Another problem is that international trade remains concentrated in goods. This means that, over the long haul, countries need to be able to produce and sell manufactured goods in order to finance imports. The erosion of U.S. manufacturing capacity undermines this ability, potentially risking a future decline in U.S. living standards and the possibility that growth and employment could be constrained by the U.S. balance of payments.

The trade deficit also carries significant adverse financial implications; in particular, foreign indebtedness makes U.S. financial markets potentially vulnerable to a sell-off by either foreign creditors or domestic investors. If this were to happen, U.S. interest rates would rise and the dollar would fall precipitously. Inflation would also likely increase because of heavy reliance on imported goods and limited domestic manufacturing capacity to replace those goods. The net result is that the United States could experience a return of stagflation.

Finally, the U.S. trade deficit links to the broader issue of export-led growth, which raises a host of controversial issues.[8] These issues include its contribution toward record global financial imbalances (as exemplified by the U.S. trade deficit); its role in promoting a race-to-the-bottom style of competition between countries that are looking for international competitive advantage, however possible; and its tendency to promote global deflation, since countries add to global supply without an equal increase in global demand.

The reliance on undervalued exchange rates to promote exports can result in the capture of industries and adversely change the character of global economic competition—something that is not addressed in standard microeconomic trade theory. This question of the character of competition links to institutional economics and provides another angle on the debate about global outsourcing (Palley 2006). It also provides a logical link to the debate regarding the need for international labor and environmental standards (Palley 2004).

## Conclusion: The Importance of GBS's Contribution

GBS's theoretical work dramatically changes the trade policy debate. In a sense, their work helps pure trade theory to catch up with the new realities of globalization. Technology is highly mobile and its transfer between countries can be significantly influenced by policy. Strategically designed policy can influence the nature of global equilibrium and thereby change the distribution of gains from trade. Strategic policy includes R&D policy, rules governing corporate behavior, exchange rate manipulation, government procurement policy, offset requirements, and policies that impact the international competitiveness of firms. The bottom line is that it is a mistake for countries to ignore strategic trade policy and it is especially dangerous when a country allows itself to be outgamed by other countries.

Although there are always gains from trade, countries can suffer from further globalization—their future gains from trade may fall, making them worse off than before. This sobering conclusion derives from pure trade theory, which assumes away macroeconomic problems such as unemployment, trade deficits, and financial instability. When these problems are factored in, the case for strategic trade policy becomes even stronger.

## Notes

1. For example, see Freeman (2004), in which the tacit assumption is that globalization expands U.S. national income, although workers lose because of a super-sized Stolper–Samuelson effect.
2. Agglomeration economies of scale are particularly complex. Where these are present, a country can appear to have the lower cost curve. However, this may be due to the fact that the country was the first to start production and thereby acquired the extra benefit of agglomeration economies.

3. It is also true that, in some instances, cooperatively reorganizing global production patterns can raise incomes and improve welfare for all countries. This can happen when, initially, the world gets locked into an extremely inefficient equilibrium in which a high-cost country is the first country to move down its average cost schedule and acquire "ruling" cost advantage. In this case, all countries can benefit by switching production to the "true" low-cost producer. Even though the first country gives up producing a lucrative product, it gains because costs are so much lower in the latecomer country.
4. Offset requirements are illegal under the WTO; but in countries like China, where the state exerts significant influence over large chunks of the economy, the tacit pressure for offsets is still there. In the United States, airlines get to choose the aircrafts they fly and they do not impose production requirements. Aircraft sales to China, however, are a different proposition.
5. Blecker (2005) points out how Joan Robinson (1947) anticipated many of the macroeconomic policy problems inherent in new trade theory with IRTS.
6. If wages rise to compensate for the burden of higher tax payments that are needed to fund the system, this would reduce the beneficial job-retention impact.
7. Scott's methodology does not include additional jobs that would be created indirectly by expenditure multiplier effects from increased incomes generated by higher manufacturing employment and production. On the other hand, nor does the methodology take account of jobs that may be created by cheaper imported inputs.
8. For a full treatment of export-led growth, see Blecker (2003) and Palley (2003b).

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