An hourglass-shaped graphic with a globe in the top bulb and a smaller globe in the bottom bulb. The hourglass is light blue and has a dark blue top and bottom. The globe in the top bulb is dark blue, and the globe in the bottom bulb is light blue. The hourglass is centered on the page.

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U.S. Terms of Trade: Significance, Trends, and Policy

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September 15, 2004

Abstract. Economics tells us that a nation exports so that it may import. Exports are the cost goods and services the domestic economy must give up while imports are the benefit foreign goods and services that we wish to acquire in trade. Clearly the nation is better off if, for any given volume of imports, it exchanges a smaller volume of exports rather than a larger volume. The nations terms of trade is a measure of the export cost of acquiring desired imports. Increases and decreases in its terms of trade indicate whether a nations gains from trade is rising or falling. While trade is a process of mutual beneficial exchange, each trading partners share of those benefits can change over time and movement of the terms of trade are an indicator of that changing share.

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U.S. Terms of Trade: Significance, Trends, and Policy

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September 15, 2004

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Summary

The nation's *terms of trade*—the ratio of an index of export prices to an index of import prices—is a measure of the export cost of acquiring desired imports. Increases and decreases in its terms of trade indicate whether a nation's *gains from trade* are rising or falling. A sustained trend of improvement of the terms of trade expands what our income will buy on the world market and can make a significant contribution to the long-term growth of economic welfare. Similarly, a falling terms of trade raises the export cost of acquiring imports and reduces real income and the domestic living standard. While trade is a process of mutual beneficial exchange, each trading partner's *share* of those benefits can change over time, and movement of the terms of trade is an indicator of that changing share.

A force or forces that changes the average level of export or import prices will change a nation's terms of trade. In this regard we can first distinguish between transitory and more enduring forces. Relatively short-term changes in national spending patterns can lead to similarly short-term changes in the terms of trade. These spending changes could be the result of changes in economic policy or swings in private sector spending over the course of the business cycle. In either case, the general scenario will be that the spending change induces either an inflow or outflow of foreign capital and an associated appreciation or depreciation of the exchange rate. A more enduring effect on the terms of trade is likely to emerge from more fundamental changes in world demand and the productive prowess of the economy. In general, anything that leads to an increased demand for the nation's exports would cause that nation's terms of trade to improve. Such demand changes will often be at the caprice of shifting tastes and preferences in the market place, for good and for bad. It is also possible that an economy can do things that raise the probability that its exports will be highly desirable.

A steady post-war rise in the U.S. terms of trade appears to have ended in the late 1960s. The rate of decline of the U.S. terms of trade was fairly substantial through the 1970s. In the 1980s, the pattern changed again with the terms of trade strengthening through mid-decade, then resuming its deterioration. In the 1990s, the deterioration stopped, with the terms of trade remaining relatively steady through mid-decade, then strengthening moderately through the end of the decade. By the year 2003, the U.S. terms of trade was more or less at the same level that it was in the 1980s, suggesting that the post—1960s trend deterioration seems to have stopped, with the U.S. terms of trade at a lower but generally stable level.

The terms of trade is unlikely to be a direct focus of economic policy, with changes most often a collateral effect of policies aimed at other economic goals. Nevertheless, it is useful to understand how various economic policies would influence the terms of trade, so as to craft policies that have the greatest positive effect on economic well-being. Also, it is possible to configure policies that, while primarily focused on other goals, maximize the probability of a favorable terms of trade effect. As such, particular configurations of macroeconomic policy, trade policy, and technology policy each have the potential for improving the nation's terms of trade. This report will not be updated.

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Economics tells us that a nation exports so that it may import. Exports are the cost—goods and services the domestic economy must give up—while imports are the benefit—foreign goods and services that we wish to acquire in trade. Clearly the nation is better off if, for any given *volume* of imports, it exchanges a *smaller volume* of exports rather than a *larger volume*. The nation's *terms of trade* is a measure of the export cost of acquiring desired imports. Increases and decreases in its terms of trade indicate whether a nation's *gains from trade* is rising or falling. While trade is a process of mutual beneficial exchange, each trading partner's *share* of those benefits can change over time and movement of the terms of trade are an indicator of that changing share.

Significance of the Terms of Trade

The terms of trade is most often defined as a ratio of an index of export prices to an index of import prices. An increase in this ratio—a rising terms of trade—means that any given *volume* of export sales will now exchange for a larger *volume* of imports. In this circumstance, the nation's real income and living standard increase because an improved terms of trade allows the economy to expend fewer resources for export production, yet command the same volume of imports. These freed resources can be used to produce more domestic goods or buy more imports. Either way the volume of goods available to the economy for a given level of resource use is now larger. A sustained trend of improvement of the terms of trade could make a significant contribution to the long-term growth of economic welfare. Similarly, a decrease in the ratio of export prices to import prices—a falling terms of trade—raises the export cost of acquiring imports and reduces real income and the domestic living standard. The decrement to economic well-being occurs because the economy must allocate more resources to the production of exports and reduce the production of domestic output to command the same volume of imports. In this case, the total volume of goods available for consumption for a given level of resource expenditure must fall.

A fall of the terms of trade, however, does not mean that trade is harmful to the nation, merely less beneficial. A lower terms of trade will mean that there was a reduction of the magnitude of the nation's gains from trade, but gains most often will still exist. So the nation is likely to still be better off with trade than without trade.¹ In a dynamic framework, we have to recognize that it is possible that changes in the terms of trade are coincident with changes in the level of trade that also changes the magnitude of the overall gains from trade. Thus, the size of the share and the size of the “pie” to be divided-up are both changing. For the United States in the post-World War II period, the level of trade has steadily risen and along with it the size of the gains from trade. Therefore it is possible even with a falling terms of trade, for there to be a net increase in economic welfare, albeit a smaller gain than would have occurred had the U.S. terms of trade been steady or increasing.

Nevertheless, a nation need not be indifferent to a trend of deterioration in its terms of trade because over time this can tally up to a significant decrement to economic well-being. This report examines the recent history of the U.S. economy's terms of trade, the forces that could have influenced the path of the terms of trade, and what policy options there are for favorably affecting the terms of trade.

¹ It is theoretically possible for an economy to be made absolutely worse off by trade due to a large deterioration of its terms of trade. The practical significance of such an outcome is, however, likely slight, and particularly unlikely for an advanced industrial economy like the United States.

What Determines the Terms of Trade

A force or forces that changes the average level of export or import prices will change a nation's terms of trade. In this regard we can first distinguish between transitory and more enduring forces. Relatively short-term changes in national spending patterns can lead to similarly short-term changes in the terms of trade. These spending changes could be the result of changes in economic policy or swings in private sector spending over the course of the business cycle. In either case, the general scenario will be that the spending change induces either an inflow or outflow of foreign capital and an associated appreciation or depreciation of the exchange rate.

These events affect the terms of trade in two ways. For an economy experiencing an appreciating currency caused by a net capital inflow, there will also be an increase in the foreign currency price of its exports and a decrease in the domestic currency price of imports, and an improvement of that nation's terms of trade. In addition, the inflow of foreign capital can cause a change in the *home currency* price of imports from the lending nation (e.g., the yen price of a Japanese export). That capital inflow represents a net transfer of income from the lending nation to the borrowing nation. If, as is likely, the lending nation has a higher propensity to spend on its exported goods than does the borrower nation, the overall demand for that good is reduced and the home currency price of the exported good will tend to fall. This, of course, also improves the terms of trade of the borrower. As we would expect, the economy that has a net outflow of capital will have the same two forces working in the opposite way and induce a deterioration of its terms of trade.

Such exchange rate movements and capital flows may not be long lived, however. There will be limits imposed by borrower and lender alike on how long such an imbalance can be sustained. Therefore, there is a strong expectation that economic forces will cause an eventual reversal of the domestic spending pattern or of economic policy that initiated this process, and a reversal of the effect on the terms of trade.

More enduring effects on the terms of trade are likely to emerge from more fundamental changes in world demand and the productive prowess of each economy. In general, anything that leads to an increased demand for a nation's exports would cause that nation's terms of trade to improve. Such demand changes will often be at the caprice of shifting tastes and preferences in the market place, for good and for bad. It is also possible that an economy can systematically assure that its exports are highly desirable. If, for example, an economy can generate a brisk pace of technological advance that is the perpetual wellspring for the creation of new and highly desirable products or higher quality products, then it is likely that the rest of the world's demand for this economy's products will be steadily strong, boosting export prices, and improving the nation's terms of trade. While imitation by foreign producers may eventually erode the large economic gains associated with any one innovation and new product, the ongoing process of innovation will keep the country's exports rich in new, strongly demanded products. Such an economy can be said to have a comparative advantage in the production of new products; and the gains from trade in these products will likely manifest as an enduring positive effect on the economy's terms of trade. There is a consensus among economists that the U.S. economy for more than a century has been such an innovating economy as evidenced by the very high incidence of sizable research efforts among industries that export.

However, if technological change manifests largely as an improvement in the efficiency of the productive process for existing goods, it is an event that increases the supply of goods that are exported, tending to deteriorate that economy's terms of trade, while improving that of nations it

exports to. Two forces work to cause this deterioration. One, greater output raises real income and, in turn, the demand for imports, pulling up their price. Two, a larger supply of exports made possible by the technological change will be absorbed in the world market only at a lower price.

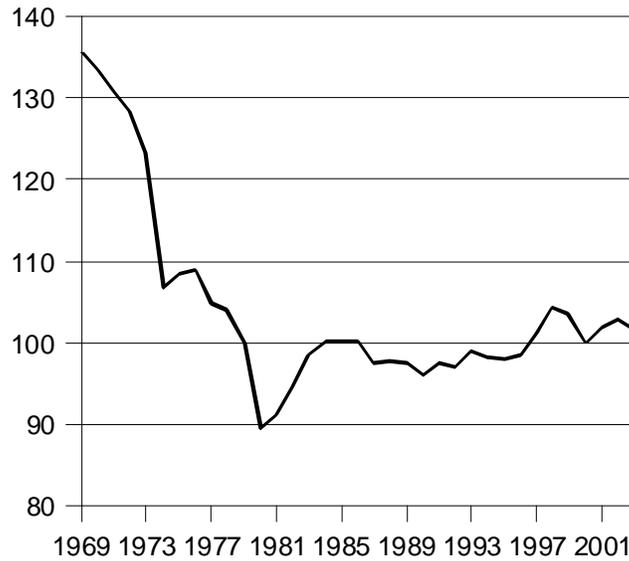
A similar effect on the terms of trade would occur if foreign producers increase the supply of the goods that an economy exports. This could occur through efficiency improvement by current foreign producers or simply an increase in the number of foreign sources of supply. On the other hand, forces that increase the foreign supply of the goods an economy imports will tend to improve its terms of trade.

Over time it is likely that economic growth, at home and abroad, will tend to show either a bias towards the production of goods a country exports or a bias towards production of the goods a country imports. If export biased, then the terms of trade tends to deteriorate over time, to the benefit of our trading partners. In contrast, an economy that experiences import-biased growth in the rest of the world tends to improve its terms of trade to the detriment of its trading partners. It is suspected that over the post-World War II era, economic growth in the rest of the world was export biased, generating more than proportionate increases in the supply of goods the U.S. exports, tending to deteriorate the U.S. terms of trade.

Trends in the U.S. Terms of Trade

It is telling of the economy's international trade performance to consider whether there has been any long-term trend in the nation's terms of trade. A rising trend would indicate that a country's trade performance has improved relative to other trading countries, reaping an increasing share of the gains from trade, and real income benefits for the economy. A falling trend would be indicative of deteriorating trade performance, decreasing share of the gains from trade, and decrements to real income. It is quite possible for a nation with persistent trade surpluses to have a declining trend in the terms of trade and a nation with recurring trade deficits to have a rising long-term trend. It is also likely that any observed trend will not necessarily reflect any one cause, but rather be the net effect of multiple and often opposing forces, whose relative strength may wax and wane over time.

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Figure 1. U.S. Terms of Trade

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Note: A ratio of an index of export prices to an index of import prices, 1996=100.

A steady post-war rise in the U.S. terms of trade appears to have ended in the late 1960s (see **Figure 1** above). The rate of decline of the U.S. terms of trade was fairly substantial through the 1970s. In the 1980s, the pattern changed again with the terms of trade strengthening through mid-decade, then resuming its deterioration. In the 1990s the deterioration stopped, with the terms of trade remaining relatively steady through mid-decade, then strengthening moderately through the end of the decade. By 2003, the U.S. terms of trade was more or less at the same level that it was in the mid to late 1980s, suggesting that the post—1960s trend deterioration seems to have stopped, with the terms of trade at a lower but generally stable level.²

The trend of decline in the U.S. terms of trade since the 1960s is evidence that from the United States' perspective economic growth in the rest of the world, particularly in the early portion of this time period, was "export biased." That is, economic growth in the rest of the world has been composed of a more than proportionate expansion of production of goods that the United States produced and exported.

This would seem a plausible outcome given the nature of economic growth for the world economy at this time. Clearly, in the early post-war period the U.S. found itself in a unique and, very likely, unsustainable position. It was the largest and most productive economy on the globe, and its output probably represented more than 50% of worldwide output. A war ravaged world economy offered a paucity of alternative sources of supply for the goods the United States was exporting. This meant that U.S. goods (exports) enjoyed strong demand and faced little effective competition on world markets. In this situation, the relative price of U.S. exports could be expected to be strong.

² The pattern of change in the U.S. terms of trade was probably also affected by the change in the world exchange rate regime in the early 1970s. The move from a fixed to floating rate system induced a sharp fall in what was then an overvalued dollar. That exchange rate effect is also reflected in the falling terms of trade at that time.

Yet, as economic growth steadily rekindled in the rest of the world, foreign economies became more like the United States in what they produced and in the efficiency with which they produced it, leading to an ever greater supply of foreign goods to compete with U.S. exports on world markets. With these developments, one could expect the strength of demand for U.S. exports to ebb, their relative price to weaken, and the U.S. terms of trade to decline.

This was not the consequence of United States lagging behind; rather, other nations were “catching up.” Such a resurgence was the predictable outcome of the healthy recovery and growth of the post-war global economy, and an outcome the United States would not want to reverse.

The magnitude of the trend decline over the last three decades, however, has been small. The average annual decline amounts to a fall of about one half a percentage point annual decrease of export prices relative to import prices. Moreover, the effect of that decline of the terms of trade on American living standards is smaller still, because only 10% to 12% of U.S. income was spent on imports over this period. That roughly translates into a decrement to U.S. real income of about 0.05 percentage points (or one-twentieth of a percent) annually. This is not a huge cost, considering the U.S. economy averaged a 3.0% annual growth rate of real GDP over this same period, but over time it cumulates to a loss equal to 1.0% of GDP every 15 years. Again, this is a reduction in the United States’ share of the possible gains from trade. Trade still makes the United States better off than not trading.³

Economic Policy and the Terms of Trade

The terms of trade is unlikely to be a prime focus of economic policy, with changes most often a collateral effect of policies aimed at other economic goals. Nevertheless, it is useful to understand how various economic policies would influence the terms of trade, so as to craft policies that have the greatest positive effect on economic well-being. Will the behavior of the terms of trade be working with or against the desired policy outcome? Also, it is possible to configure policies that, while primarily focused on other goals, maximize the probability of a favorable terms of trade effect. And, of course, it is possible that there could be an interest in making the terms of trade a policy goal. This section will consider how various types of economic policies will likely influence the economy’s terms of trade. The likely practical viability of each policy will also be considered.

Macroeconomic Policy

The traditional tools of monetary and fiscal policy are unlikely to be directly aimed at achieving a particular goal for the terms of trade. The target of these powerful policy instruments is economic stabilization: securing stable and rapid economic growth, low inflation, and low unemployment. Such macroeconomic policies can, however, have a significant indirect effect on the terms of trade. The pursuit of stabilization goals will often cause the dollar’s exchange rate to increase or

³ For evidence that the U.S. gains from trade have been positive, see Jeffery Frankel and David Romer, *Does Trade Cause Growth?* NBER Working Paper No. 5476, June 1999; Edward E. Leamer and James Levinsohn, “International Trade Theory: The Evidence,” in *The Handbook of International Economics*, vol. 3 (Amsterdam: North Holland, 1995); Catherine L. Mann, *Globalization of IT Services and White Collar Jobs: the Next Wave of Growth*, International Economics Policy Briefs, no. pb03-11 (Washington, IIE, Dec. 2003); and Douglas A. Irwin, *Free Trade Under Fire* (Princeton NJ: Princeton University Press, 2003) pp.29-54.

decrease, and exchange rate movements will directly affect the relative price of exports and imports and change the terms of trade. We saw in the 1980s that the combination of a tight monetary policy (aimed at reducing inflation) with an expansive fiscal policy (caused by tax cuts aimed at reducing the federal tax burden and by spending increases aimed at strengthening national defense) increased the level of domestic interest rates, inducing a large net inflow of foreign capital seeking the higher relative return on U.S. assets, that in turn, generated a sizable appreciation of the dollar. The United States' terms of trade rose with the dollar. The improvement in the terms of trade was substantial, but not long lived. With a change in the configuration of macroeconomic policy and an ebbing of foreign capital inflows, the improvement in the terms of trade was reversed before the end of the decade.

Macroeconomic policy could have another indirect, but more enduring effect on the terms of trade. It seems probable that a consistently well-run economy, where macroeconomic policy has steadily secured rapid growth, low and stable inflation, and low unemployment, is more likely to be an economy that provides a strong incentive for technological advance and innovation, an economy that has an abundance of healthy and forward looking industries, and an economy that is prolific creator of a broad array of goods for which there is persistent strong demand by the rest of the world. Such a demand response could have a positive effect on the terms of trade. Of course, to the extent that sound macroeconomic policy only enhances our ability to supply goods to the world market, there may be a negative effect on the terms of trade. (This is certainly not an argument against sound macroeconomic policy, merely that we gain somewhat more under the first scenario.)

Technology Policy

In economics, technology is the way scarce resources are combined to produce a desired good or service. Whether the growing of wheat, the manufacture of automobiles, or the development of a new drug, the steady improvement of technology over time is the "engine that drives" sustained improvement in the nation's economic well-being, allowing the production of more and better output from any given endowment of economic resources. One manifestation of such improvement will be a steady improvement of productivity. Another manifestation could be as an improvement in the nation's terms of trade, as strong international demand for new and improved products increases their export price and raises the quantity of imports that a given volume of exports exchange for.

What is the public policy issue here? Improving technology is largely a process of generating new ideas. But the production of new ideas is likely an activity toward which the private market system will allocate less than the socially desirable level of resources. To the extent that new ideas lead to profitable outcomes and those profits can be secured by a private firm, the market economy will generate new ideas and foster technological change. An inherent attribute of ideas, however, is that they are *non-rival*, as my using the idea does not preclude someone else from using it. Further, ideas will often have the attribute of *limited excludability*, meaning the owner of the idea will find it difficult or impossible to charge a fee for its use. These attributes will likely cause a divergence of private benefit and social benefit. (What the creator of the idea can expect to gain will be less than what the overall economy can expect to gain.) In this situation less than the socially desirable level of idea generation will occur. Therefore, this is an activity which may warrant some level of government involvement and support if it is to be done on a socially optimal scale.

This so-called *market failure* in idea production can be corrected by an appropriate amount of public support for the idea creation process. Such support could include public funding of *research and development* (R&D), particularly in the area of basic scientific research where the prospect of market failure is the greatest; public funding for investment in human capital, particularly education in the sciences and engineering where benefits of cumulative knowledge often extend beyond the individual; and public support for mechanisms to establish and enforce property rights, such as patent and copyright administration. Of course, these are activities that the U.S. government does now.⁴ But the open question is whether such support is accurately targeted and undertaken on an adequate scale. This is not an easy question to give a precise answer to because the lack of a market price for the full benefits of the activity makes it difficult to judge relative scarcity.

As regards spending on R&D, there is a considerable amount of economic evidence that the social rate of return to R&D for a variety of research projects often greatly exceeds the private rate of return, suggesting that too little research is being undertaken. (At optimal scale, research projects would be undertaken to the point where the social rate of return has been pushed down to the level of private return.) By some estimates, the level of investment undertaken by firms could be as little as 25% of the level that would be economically optimal.⁵

This said, we also observe that total R&D spending by industry and government as a percentage of GDP has hovered around 2.5% of GDP for nearly 30 years. The overall steadiness of this share, however, masks divergent paths for industry and government R&D spending. While the dollar spending levels by industry and government have both increased, since the 1980s as a percentage of GDP, industry's share has risen and that of government has fallen. It is government spending on R&D that largely provides support to basic research and this is an area where the incidence of market failure in idea production is probably the greatest. Argument for public support of the idea-creation process certainly transcends its possible impact on the nation's terms of trade, but it is one potentially significant aspect of the economic gains from steadily advancing technology.

Trade Policy

Trade policy comprises actions by government that attempt to directly influence trade performance. The most basic manifestations of such policies are tariffs to protect domestic industries from competition from imports and subsidies to promote exporting industries. These actions may also affect the terms of trade.

Economic theory indicates that there can be a circumstance when imposing a tariff can improve the nation's terms of trade. By reducing the demand for imported goods, a tariff has a tendency to decrease the price of imports. In the standard analysis this positive effect on the terms of trade (as well as the positive effect on the protected industries) is most often outweighed by the costs of the tariff to the wider economy brought about by the tariff's distortion of consumption and

⁴ For a discussion of current federal programs, see CRS Issue Brief IB10088, *Federal Research and Development: Budgeting and Priority Setting Issues, 108th Congress*, by Genevieve Knezo.

⁵ See Zvi Griliches, "The Search for R&D Spillovers," *Scandinavian Journal of Economics*, (1991), pp. 29-47; Bruce Smith and Claude Barfield. *Technology, R&D, and the Economy* (Washington: Brookings Institution, 1996); and Charles I. Jones and John C. Williams, "Measuring the Social Return to R&D," *The Quarterly Journal of Economics*, vol. 63, no.4, (Nov. 1998), pp. 1119-1136.

production incentives. But, if a tariff causes a sufficiently large reduction of the price of imported foreign goods, the economic gain from the terms of trade improvement could outweigh the distortion costs of the tariff and improve the imposing country's economic well-being. The economic concept of the "optimal tariff" relates to finding the tariff rate that would maximize this favorable effect.

The export sector can also, in theory, be an avenue by which trade policy could induce a positive terms of trade effect. Export subsidies, because they tend to lower export prices, will cause the terms of trade to decrease. Therefore a positive effect on the terms of trade would require a negative subsidy—or an *export tax*—that raises the price of exports. If this positive effect on the terms of trade is large enough, then it may outweigh the negative effects that arise from the distortion costs of the export tax. The "optimal" export tax is the tax rate that would maximize the positive effect of this instrument on overall economic well-being.

In practice, however, trade policies that attempt to increase the economy's terms of trade using tariffs or export taxes are of doubtful practical value. First, these are policies that could have potential relevance only for very large trading economies such as the United States, whose exports and imports represent a large proportion of world wide sales and are, therefore, able to influence the exports or imports price in the world market. Second, there is no reason to believe that such price effects are particularly large. And third, if the potential gain is large or small, there is every reason to believe that using these policy devices to generate terms of trade gains is not very likely to be sustainable due to retaliation by other nations. If these trade policy devices are used by the United States (or any nation) it would be a use of monopoly power to extract extra gains from other trading nations. We can expect that this would not be a matter of indifference to affected nations, quickly prompting retaliatory actions that would tend to not only erase any initial economic gains to the United States, but reduce the economic well-being of *all* trading nations if a cycle of retaliation and counter-retaliation induces a large contraction of world trade.

While erecting trade barriers may not be a viable means to improve the terms of trade, reducing barriers could be.⁶ For the United States, such a lowering of trade barriers could improve the U.S. terms of trade for two reasons. First, because the level of U.S. trade barriers is already very low relative to the level of many U.S. trading partners; therefore, a multilateral reduction or removal of those barriers will likely have a stronger positive effect on the demand for U. S. exports than it will on U.S. demand for imports, tending to increase export prices relative to import prices and improve the U.S. terms of trade. Second, services trade is likely to be high on the agenda of the new round of negotiations. The prospect of lower barriers to services trade may bode well for the U.S. terms of trade. Services account for a much smaller share of U.S. trade than they do of GDP. The United States is the world's largest producer of services and it seems very likely that it could export an array of strongly demanded products to the rest of the world. This can also lead to an improvement in the terms of trade as that demand pulls up U.S. export prices.

⁶ The last large multilateral trade policy initiative was the Uruguay Round in 1994. However, preliminary negotiations for a new round of reductions have occurred and a further multilateral lowering of trade barriers may be in the offing in the years just ahead. For more on the current state of these negotiations and their likely agenda, see CRS Report RL32060, *World Trade Organization Negotiations: The Doha Development Agenda*, by Ian F. Fergusson.

Industrial Policy

In theory there can be “special” industries, which, if given government nurturing, will grow to generate large economic returns in the future. Without this public support, however, these special industries will not emerge or will emerge at too small a scale. While there are many variants of the argument for government promoting particular industries, two have some plausible economic merit. One is support for industries that generate what economists call “positive externalities.” This means that the firm’s or industry’s actions have the potential to generate substantial economic benefits that spill over to other firms or sectors, but none or only a fraction of those benefits can be appropriated by the initiating firm. The generation of new ideas is often the activity of central economic importance for economic well-being. Yet, because an idea can have limited excludability, it can be difficult for the firm to fully appropriate the economic benefits of the idea it has created. The new idea may easily spill over to benefit other enterprises without compensation accruing to its creators. In this environment, without government support the firm will not have the incentive to invest in the knowledge-creating process at a level that the whole society would find most economically beneficial.

The likely existence of significant positive externalities is a theoretically valid argument for government support for an industry. In practice, however, it is a problematic endeavor.⁷ To be economically effective, such support needs to be targeted at the knowledge that would not otherwise be produced. This is likely a difficult task. Even if the right target is identified, it will be virtually impossible to know what amount of support is called for because these types of activities do not carry a market price from which to judge relative scarcity. A policy of support runs the risk of being too blunt an instrument to just raise economic efficiency, as it is possible that it creates other costly distortions. At the international level, knowledge nurtured at considerable expense by one nation may be easily appropriable by industries in other nations, tending to reduce any national advantage to accrue from supporting a special firm or industry.

The other theoretically valid argument for government promotion of a particular industry is based on the possible existence of “strategic industries.” These are industries in which only a very few firms would be able to operate profitably and each firm’s action will have strong repercussions on the profit potential of other competitors. In this oligopolistic market structure, firms will likely have a significant degree of monopoly power and the potential to earn above normal profits. Capturing a large share of those profits would increase the home nation’s economic well-being. In this environment, nations may be tempted to compete for those profits. Without government support those profits will most likely be appropriated by the first few firms to establish themselves in the industry. Subsequent entry by other firms would be deterred as they can only expect to incur losses. Who enters and who is deterred can be influenced by the government of one country making a strategic intervention that gives support with a subsidy sufficient to assure that whether firms from other nations enter or not, its firm will earn a profit. Because any unsubsidized firm would now earn losses, they will likely be deterred from entry. The government intervention has thereby shifted potential profits from the foreign to the domestic firm and raised economic well-being in the home economy.

⁷ For a discussion of the problematic success of industrial policy in practice in several industrial countries, see Paul Krugman and Maurice Obstfeld, *International Economics: Theory and Policy* (New York, Harper-Collins, 1994), pp. 287-296.

Again, while it is conceptually possible for a strategic trade policy to raise national economic well-being, its practical significance has been widely questioned by economists. Perhaps the greatest doubt as to the efficacy of strategic trade policy is that the information required for the government to successfully execute the policy most likely exceeds what would be readily available. Economic theory indicates that the conditions needed for the execution of a successful strategic trade policy are many and a favorable outcome will be extremely sensitive to small deviations from any of those necessary conditions. This means that pursuing such a policy with substantially incomplete information could easily result in subsidies supporting more inefficiency than efficiency, and leading to more loss than profit.

Further, if large subsidies are to be handed out without all necessary information available, policy makers can anticipate some politicization of the process and the rising probability that more subsidies will be given than can be analytically justified. Success is likely to be even less tractable if trading partners can be expected to retaliate against a policy that will clearly make them worse off.

Finally, economic studies have suggested that even if the policy is well implemented, the realized gains could be very small. For all these reasons, it is unlikely in practice that federal government support of strategic industries would be a viable means for raising the terms of trade and overall economic welfare.⁸

Conclusion

The terms of trade can be a telling indicator of changes in the economy's gains from international trade. Changes in the terms of trade point to either an increment or decrement in real income. While short-term changes are often offsetting and carry little significance, long-term trends can point to significant enhancement or erosion of economic well-being. Nevertheless, the terms of trade is unlikely to be at the center of most discussions of trade policy or macroeconomic policy because it is not a variable that is easy to influence directly.

While there may be opportunities for a nation to use economic policy to directly influence its terms of trade, these are unlikely to be exploitable tools. Because your gain is going to be at their expense, other nations are likely to try to counter such policies. This is a situation that could all too easily devolve into a vicious cycle of retaliation and counter-retaliation, shrinking the volume of world trade and leaving all parties worse off.

Nevertheless, economic policy may be able to influence the economy's terms of trade in a favorable manner. It is most likely to do so *indirectly*, with positive effects on the terms of trade emerging as a beneficial by-product of policies that support an "infrastructure" that generally furthers the goal of vigorous economic growth. A number of economic policies are likely to raise the probability (but certainly not assure) a favorable terms of trade effect. Macroeconomic policies that minimize economic instability and nurture forward looking activities such as

⁸ For an appreciation of the evolution of thinking about strategic industries and economic policy by a trade economist prominent in the development of the idea, see Paul Krugman, "Is Free Trade Passe?," *Journal of Economic Perspectives* (fall 1987), pp. 131-141; and "Does the New Trade Theory Require a New Trade Policy," *The World Economy* (July 1992), pp. 423-441. For a general survey of the issue, see Douglas A. Irwin, *Against the Tide: an Intellectual History of Free Trade* (Princeton University Press, 1996), pp. 207-216.

investment and innovation, policies for focused public support of knowledge producing activities that are very likely undervalued by the private market, and continued initiatives toward the lowering of trade barriers at home and abroad are all likely to be important to developing such an infrastructure. In this way terms of trade gains would likely be seen as emerging from a process that has probably increased the gains to each trading partner (although not necessarily equally), and thereby not seen by other nations as a “zero sum game” where our gain is their loss.

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