

Nontariff Barriers and Arguments for Protection

Topics to Be Covered

Quotas
 The Welfare Effects of Quotas
 The Equivalence or Non-equivalence of Tariffs and Quotas
 Other Nontariff Barriers
 Arguments for Protection

Key Words

Quota	"Buy American" acts
Embargo	Export subsidy
Tariff rate quotas (TRQs)	Countervailing duty
Quota rents	Infant industry argument
Voluntary export restraint (VER)	Pollution havens hypothesis

The previous chapter was devoted entirely to a discussion of the use of tariffs as barriers to international trade. While tariffs remain the most universal of trade barriers, they are not the only form of commercial policy available to governments. In fact, nontariff barriers (NTBs) in a wide variety of forms are used as instruments of commercial policy by most governments. The amount of trade that is disrupted because of NTBs is large; because of this, NTBs have become a major focus of concern in international talks to reduce trade barriers.

In this chapter we explore the nature of various nontariff barriers to international trade.* We focus our discussion especially on *quotas*, which are government-imposed limitations on the quantity

* The classic analysis of nontariff barriers is in Robert Baldwin, *Nontariff Distortions of International Trade* (Washington, D.C.: Brookings Institute, 1970). See also Julio Nogues, Andrzej Olechowski, and L. Alan Winters, "The Extent of Nontariff Barriers to Imports of Industrial Countries," *World Bank Staff Working Papers #789* (1986); Sam Laird and Alexander Yeats, *Quantitative Methods for Trade-Barrier Analysis* (New York: New York University Press, 1990); and Alan Deardorff and Robert Stern, *Measurement of Nontariff Barriers* (Ann Arbor: University of Michigan Press, 1998). For a superb, nontechnical introduction to the topic, see Cletus Coughlin and Geoffrey Wood, "An Introduction to Non-tariff Barriers to Trade," *Review* (Federal Reserve Bank of St. Louis, 1989).

or value of trade in a certain product. We also examine other nontariff measures, such as subsidies, health and safety standards, and government procurement policies, all of which are aimed at affecting the level of international trade. Part of our discussion in this portion of the chapter will be on the similarities and differences between these policies and tariffs.

After we have analyzed NTBs, our attention shifts to a discussion of the motives for imposing barriers to trade. In particular, we focus on the question of what, if any, are the legitimate arguments for protection. That is, governments use a variety of justifications to defend their imposition of trade barriers. These include the preservation of jobs, industry restructuring, national defense, and government revenue. One of the interesting results of this section is that most of the commonly heard arguments for protection have little or no legitimacy. That is, protection fails to lead to the outcome it is supposed to achieve. On the other hand, legitimate arguments for protection exist, but in cases where these arguments apply, protection is seldom the best way to achieve the stated goal.

QUOTAS

Quota

A government-mandated limitation on either the quantity or the value of trade in a product.

Quotas are government-imposed limits on the quantity or value of goods traded between countries. For example, a government may choose to limit imports of a product (e.g., sugar) to no more than 1.12 million tons in a particular year,* or it may decree that no more than \$25 million of another product (e.g., cotton blouses) will be allowed into the country.† Because quotas restrict the amount of foreign competition in the marketplace, they tend to have effects similar to those of tariffs. That is, after they are imposed, domestic prices rise and, of course, imports fall.

Embargo

A complete ban on trade in a product or products.

Quotas that entirely eliminate trade in a certain product are known as **embargoes**. Embargoes are sometimes established as a form of economic sanction against the policies or practices of another country. For instance, the United States has had an embargo on the export of U.S. goods to Cuba since 1960 and an embargo on the import of most products from Cuba since 1962. The United States also currently bans most imports from Iran, Myanmar, North Korea, and certain areas of Sudan. Sometimes countries will impose embargoes for national defense reasons. For instance, the NATO allies have an agreement that restricts exports of certain “high-tech” goods to countries considered to be unfriendly. Despite these examples, embargoes are relatively scarce.‡ Rather, quotas are most often set at levels greater than zero so that some, though limited, trade occurs.

For a variety of reasons that we will soon explore, quotas are viewed as being more restrictive than tariffs. Perhaps as a result of this attitude, quotas on most manufactured products have long been prohibited by the international trade law administered by the World Trade Organization (WTO).

Despite this prohibition, countries have continued to use quotas to protect their agriculture, textiles, and apparel industries. In the early 1970s, the United States, Canada, and the European Union negotiated a worldwide quota system known as the *multifiber arrangement* to limit international trade in textiles and apparel. This agreement set out specific market shares for the many countries that produce and try to export textiles and apparel products. As part of the 1994 Uruguay Round agreements, signatory countries have largely replaced existing quotas on

* In fact, this was the level of the U.S. quota on sugar imports for the period from October 2010 through September 2011.

† In practice, quantitative quotas, often based on market shares, are more common than value quotas; hence, they will be the focus of the discussion that follows.

‡ For an extensive history and analysis of the use of trade policy as a tool to influence foreign policies, see Gary Hufbauer, Jeffrey Schott, Kimberly Elliott, and Barbara Oegg, *Economic Sanctions Reconsidered* (Washington, D.C.: Peterson Institute for International Economics, 2008). For details on U.S. sanctions, see U.S. International Trade Commission, *Overview & Analysis of Current U.S. Unilateral Economic Sanctions* (Washington, D.C.: USITC, November 2006).

agricultural products, textiles, and apparel with tariffs or **tariff rate quotas (TRQs)**.^{*} TRQs are quota policies that allow a certain quantity of a good into a country at low (often zero) tariff rates, but then apply (often substantially) higher tariffs to quantities that exceed the quota. Despite the movement to replace them with these alternative forms of protection, quotas still exist.

Phaseout of the multifiber arrangement was completed on January 1, 2005. However, international trade law allows countries to impose quotas to provide temporary protection to aid locally distressed industries or when they have balance-of-payments problems. Faced with sharply rising imports of textiles and apparel from China, in the summer of 2005 the European Union negotiated a three-year agreement with China to limit the growth in Chinese exports of these products. The United States reached a similar agreement with China in November 2005. These agreements have now expired.

In addition to these country-specific quotas, the United States has TRQs on milk, cream, cheese, butter, margarine, peanuts, sugar, various products containing sugar (including chocolate), cotton, and cotton waste. In addition, it has a law known as the Jones Act of 1920 that requires all shipping between U.S. ports to be carried on American-built, American-owned ships. Examples such as these abound worldwide. For instance, Canada has TRQs on dairy products, eggs, and poultry; Indonesia has banned the export of logs and rattan; Thailand prohibits imports of cigarettes; and Finland has a ban on the import of softwood products.

In addition to formal restrictions, countries have sometimes found ways of imposing quotas indirectly by obtaining agreements from exporting countries to “voluntarily” limit exports. These latter agreements are also gradually being phased out under the auspices of the WTO.

From the point of view of government officials, quotas are a very flexible tool of commercial policy. They may be imposed against all countries or used against only a few. The internal and external impacts of the quota depend in part on how the policy is administered. Sometimes countries announce an unallocated global quota. In these circumstances, customs officials are instructed to maintain a count of the imported product (in terms of quantity or value) as it arrives at the docks from different foreign suppliers. Once the quota has been reached, no more of the product is allowed into the country. Thus, those foreign suppliers who get their product to the domestic market first are able to sell their product. Latecomers are turned away.

For a variety of reasons, unallocated global quotas are relatively uncommon, especially among industrialized countries. First, because the system rewards those who import early in the quota period, ports of entry into the country tend to be clogged during some parts of the year and empty during other parts. This leads to considerable inefficiency in the use of cargo-handling facilities. In addition, under this type of quota scheme, it is often the case that imports of the product that reach the docks exceed the levels permitted by the quota. Second, because the quota does not discriminate among various potential sources of supply, some foreign producers may lose markets that had traditionally been theirs. This could lead to considerable friction between countries. Finally, because unallocated global quotas can lead to extraordinary profits for those lucky enough to be able to import the product into the country, government officials may want to ensure that certain groups (perhaps including themselves) become the beneficiaries of these policies. Thus, it has become common for quotas to be allocated on the basis of licenses.

Quota licenses provide the bearer with the right to import into the country a specific amount of the product during a specific period of time. Depending upon the quota scheme in force, licenses may be sold or given away. The recipients may be domestic or foreign. As we shall see, the welfare impact of this quota system depends in part on who gets the licenses and how much was paid to obtain them.

To understand better the economic effects of a quota, consider Figure 7.1. There we show the market for good M —say, motorcycles. The curve labeled S_M is the supply curve of domestic

Tariff rate quotas (TRQs)

Policies that allow a certain quantity of a good into a country at low (often zero) tariff rates, but then apply higher tariffs to quantities that exceed the quota.

^{*} See Chapter 8 for a complete discussion of WTO and the Uruguay Round.

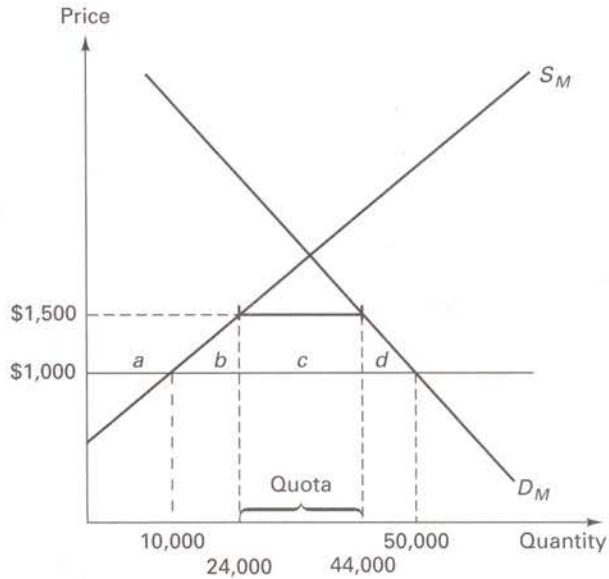


FIGURE 7.1 Welfare Effects of a Quota

producers. The curve labeled D_M is the domestic demand curve. The world price is assumed to be \$1,000. Under free trade, residents of this country would consume 50,000 motorcycles; 10,000 of these would be produced locally, and 40,000 would be imported.

Suppose that the government imposes a quota that limits imports to 20,000 units. Because of the reduction in imports, motorcycle prices will start to rise, and this will encourage local producers to expand their output levels. These market forces will bring about a new equilibrium. Where will the equilibrium be located? Consider the diagram. Prices must continue to rise until desired imports fall to the quota level of 20,000 units. In terms of the picture, the price must rise until the difference between domestic demand and supply equals 20,000. As drawn, this occurs at a price of \$1,500. At this price, 44,000 units will be purchased; 20,000 of these will be imported, and the remaining 24,000 will be produced locally. Thus, just as with a tariff, quotas serve to limit trade and raise prices. In fact, as drawn in the diagram, a quota of 20,000 units appears to be qualitatively identical with a tariff of \$500. How apt is this comparison? It is to this question that we now turn.

THE WELFARE EFFECTS OF QUOTAS

One issue we were concerned with in our study of tariffs was the welfare consequences of these policies. What are the welfare effects of a quota? Consider again Figure 7.1. The imposition of the quota raises the domestic price and therefore lowers consumer surplus. Consumers lose the amount $\$(a + b + c + d)$. Of this lost consumer surplus, $\$a$ represents higher profits (producer surplus) that accrue to domestic firms. These come about (as with the case of tariffs) because import barriers have lowered the amount of foreign competition faced by domestic firms. Thus, domestic firms are able to raise their prices above the free-trade price without fear of losing their customers to foreign suppliers. The triangles $\$(b + d)$ represent the deadweight costs of the quota and correspond exactly to the deadweight costs of an equivalent tariff (i.e., a tariff of \$500). Consider area c . What does this area represent?

Area c is the value of **quota rents**. Quota rents are profits that accrue to whoever has the right to bring imports into the country and sell these goods in the protected market. To see this more clearly, consider the rectangle that defines area c . The base of that rectangle represents the

Quota rents

Profits that come about because a quota has artificially raised the price of imported products.

TABLE 7.1 Welfare Effects of a Quota When a Government Auctions Licenses

Change in consumer surplus	-\$a	-\$b	-\$c	-\$d
Change in producer surplus	\$a			
Change in government revenue			\$c	
NET WELFARE COST		-\$b		-\$d

amount of imports allowed into the country (i.e., 20,000 units). The height of the rectangle is the difference between the world price (\$1,000) and the domestic price (\$1,500). The difference between these two prices, of course, reflects the per unit (additional) profit that can be earned by whoever has the right to sell the imported product.

This brings us back to the issue of who gets the licenses and how much is spent in obtaining them. We can distinguish among several cases. Suppose the licenses are auctioned by the government. If there is competitive bidding for all licenses, we would expect that the government should be able to collect almost all of area c . In this case, area c can be thought of as government revenue. Treating $\$c$ as an increase in government revenue (assuming that the government returns this revenue to the economy) leads to a straightforward calculation of the economic costs of the quota. In particular, the quota causes a redistribution of income from consumers to domestic producers ($\$a$) and the government ($\c). The remaining loss of consumer surplus represents the net deadweight cost to the economy, $\$(b + d)$. This information is summarized in Table 7.1.

Thus, if we continue to assume that \$1 of government revenue has equal welfare weight to \$1 of producer or consumer surplus, then, when the government auctions quota licenses, the welfare cost to the economy is identical to the cost imposed by an import tariff that raises the price by the same amount. While tariffs and quotas appear to be identical in this instance, it is necessary to study other scenarios. Surprisingly, it is seldom the case that governments auction import licenses. One exception is Russia; it auctions licenses for goods such as sugar.

How big is area c ? The answer varies according to the country that imposes the quota, the products protected, and the degree of protection. In the mid-1980s, two separate studies provided estimates of how much revenue the United States might raise were it to auction quota rights to the quotas in place at the time. These studies concluded that the U.S. government was forgoing between \$3.7 billion and \$6.8 billion annually in potential revenues by not holding auctions. The bulk of these amounts involved quota licenses on steel and on textiles and apparel.*

When governments give away quota rights, the welfare effects of quota protection depend crucially on who receives the licenses. For instance, when licenses are given to *domestic* producers or importers, the effects are qualitatively identical to those of auctions. The only difference between this situation and auctioning is that in this instance area c becomes part of domestic producer surplus. That is, profits to domestic firms rise by $\$(a + c)$, while government revenue remains unchanged.

A case where quota rents were given to local producers occurred in the United States in the 1960s. The government imposed a quota on imported oil. The purpose of the quota was to drive oil prices up inside the country to increase the competitiveness of U.S. oil fields. Quota rights were given to the U.S. oil industry. The quotas were so restrictive that the domestic industry was able to buy oil in the world market at a price of \$1.85 per barrel (delivered from the

* See Fred Bergsten, Kimberly Elliott, Jeffrey Schott, and Wendy Takacs, *Auction Quotas and United States Trade Policy* (Washington, D.C.: Institute for International Economics, 1987), and Congressional Budget Office, "Revenue Estimates for Auctioning Existing Import Quotas" (memorandum, February 1987). Neither of these studies has been updated, so it is unclear what lost auction revenue would be today. In addition, the United States has changed several of its trade restrictions; many of the quotas analyzed in the studies are no longer in place.

TABLE 7.2 Welfare Effects of a Voluntary Export Restraint

Change in consumer surplus	-\$a	-\$b	-\$c	-\$d
Change in producer surplus	\$a			
Change in government revenue			0	
NET WELFARE COST		-\$b	-\$c	-\$d

Persian Gulf to the United States) and sell it inside the United States for \$3.10, a 67 percent markup. In 1966, the quota rents accruing to oil importers amounted to \$620 million (about \$5.4 billion in 2010 dollars).

Now, let us consider the case in which the government gives the quota licenses to foreigners. A classic example of this type of policy is a **voluntary export restraint (VER)** agreement negotiated with a foreign supplier. Under such an agreement, a foreign government restricts the exports of its industries to the importing country. In return, these foreign industries are able to raise their prices, thus earning the quota rents on top of their normal profits. What are the welfare costs of a VER? Again, consumers lose $$(a + b + c + d)$. Of this amount, $$a$ is transferred to domestic producers; $$(b + d)$ again is the deadweight loss for the economy; and $$c$ is a transfer of income from domestic residents to foreign exporters. Hence it, too, is a cost to the economy. In sum, with a VER, the economy loses $$(b + c + d)$. This information is summarized in Table 7.2.

Thus, we see that if the government negotiates a VER with a foreign government, the welfare costs rise above the costs of a tariff. They also rise above the costs of an auctioned quota system or a system in which quota rights are given to domestic residents. This is why it is important to know how a quota is administered.

THE EQUIVALENCE OR NONEQUIVALENCE OF TARIFFS AND QUOTAS

So far, we have shown that tariffs and quotas are similar in their effects on prices, output, and imports. We have also shown that there is at least one major difference between these two policies—the interpretation of area c and who receives these funds. In fact, the distribution of area c is just one of several differences between quotas and tariffs. In this section we discuss these differences. One reason for knowing that these differences exist, of course, is to understand better why governments might choose one type of policy over another.*

One principal difference between tariffs and quotas concerns the effects of these alternative policies on the behavior of the protected industry. Suppose, for instance, that the domestic industry is a monopoly. With a tariff, the domestic monopolist can charge no more than the world

* There is a considerable body of literature on the equivalence or non-equivalence of different forms of commercial policy. See, for instance, Hirofumi Shibata, "Note on the Equivalence of Tariffs and Quotas," *American Economic Review* (1968); Jagdish Bhagwati, "More on the Equivalence of Tariffs and Quotas," *American Economic Review* (1968); Carlos Rodriguez, "The Non-equivalence of Tariffs and Quotas under Retaliation," *Journal of International Economics* (1974); Wendy Takacs, "The Non-equivalence of Tariffs, Import Quotas, and Voluntary Export Restraints," *Journal of International Economics* (1978); Jose Lizondo, "A Note on the Non-equivalence of Import Barriers and Voluntary Export Restraints," *Journal of International Economics* (1984); John Karikari, "Tariffs versus Quotas in a Differentiated Products Market: A Conjectural Variations in Prices Approach," *International Economic Journal* (1996); Jerzy Konieczny and Robert Waschik, "The Non-equivalence of Tariffs and Quotas in a Dynamic Trade Model," *Journal of International Economics* (1999); Harvey Lapan and Bruno Larue, "Smuggling and Bhagwati's Non-equivalence Between Tariffs and Quotas," *Review of International Economics* (2002); Bruno Larue, Jean-Philippe Gervais, and Sebastian Pouliot, "Price Equivalent Tariffs and Quotas under a Domestic Monopoly," *Journal of International Trade and Economic Development* (2008); and Hong Hwang, Kuo-Feng Kao, and Cheng-Hau Peng, "Tariff and Quota Equivalence in Vertically Related Markets," *Review of Development Economics* (2011). A summary of research on quotas is found in James E. Anderson, *The Relative Inefficiency of Quotas* (Cambridge, Mass.: MIT Press, 1988).

Voluntary export restraint (VER)

An agreement reached between importing and exporting countries whereby the exporters agree to limit the amount they export.

price plus the tariff. Because the monopolist faces potential competition from suppliers in other countries, she is unable to exploit her domestic monopoly power.

This is not the case with quota protection. Under a quota, the monopolist knows that her competition is limited to a specific number of imports. Thus, she merely subtracts the amount of quota-restrained imports from overall market demand and is then free to exercise her market power over the remaining part of the domestic market. We now can state a general result: If the domestic firm has market power in its own market, then it will charge higher prices and produce less under quota protection than under tariff protection.

Tariff and quota protection will also be different if market forces change over time. Suppose that domestic demand increases. With tariff protection, the internal price remains the world price plus the tariff. The increased demand will be met by a rise in imports. With quota protection, no new imports are allowed in. The only way the market can reach equilibrium is for the price to adjust. And with higher domestic prices come greater deadweight costs.

A third difference between the two forms of protection has to do with administrative difficulties. We have already shown that the welfare impact of a quota depends in part on which of many interested parties obtains the quota rights and whether the rights are sold by the government. How is this decision made? There is no clear-cut answer as to why so few governments auction off quota rights. Some economists argue that it is because politicians don't want consumers to know what individuals would be willing to pay for the quota rights. Such information would provide a clear signal of the consumer cost of the quota. Others have argued that, in the cases where the goal of protection is temporary shelter from foreign competition, governments would later be reluctant to drop quotas because of the loss in revenues. Less cynical commentators note that in many cases the value of quota rents may be relatively low, especially when compared with the bureaucratic costs of holding an auction.*

Thus, in most cases the issue boils down to a question of how to give away the quota rights. A solution that is often chosen is to give away rights based on traditional market shares.† The problem with this approach is that it freezes the market based on historical relationships. Such divisions do not allow consumers to alter their consumption choices with changes in tastes or on efficiency grounds. There is no legal mechanism to ensure that if, for instance, a country becomes relatively more efficient in producing a good, it can obtain a higher market share. With a tariff, by contrast, importers are free to search the world market for the best goods. Market shares will change to reflect relative changes in efficiency.

The final problem is that relative to tariffs, quota protection encourages much more graft and corruption. Because of the arbitrary nature of the disposition of quota rights, there is an incentive to bribe authorities to make particular decisions. Moreover, even when authorities are known to resist bribes, potential beneficiaries will devote considerable sums of money to legal methods of persuasion, such as campaign contributions and expensive dinners or weekend vacations with lobbyists. The chase for these valuable quota rents leads, then, to an expenditure of resources. This expenditure brings about no new production of goods generally valued for consumption purposes, and thus it is an outlay that is considered by many to be economic waste.‡

* There may also be considerable bureaucratic resistance to the auctioning of quota licenses. One objection once cited by U.S. federal officials is that no foreign country would want to be the first to be told that the quota rents it would have been given in previous years are now being auctioned to the highest bidders. Obviously, so long as arguments such as this are invoked and hold sway, quota licenses will never be sold.

† This is the case where either domestic importers or foreign producers are given the rights.

‡ There is now a substantial body of literature concerned with the economic effects of rent seeking by potential beneficiaries of government policies. Some important contributions to this literature include Jagdish Bhagwati and T. N. Srinivasan, "Revenue Seeking: A Generalization of the Theory of Tariffs," *Journal of Political Economy* (1980); William Brock and Stephen Magee, "The Economics of Special Interest Politics: The Case of the Tariff," *American Economic Review* (1978); Anne Krueger, "The Political Economy of the Rent Seeking Society," *American Economic Review* (1974); and Gordon Tullock, "The Welfare Cost of Tariffs, Monopolies, and Theft," *Western Economic Journal* (1967).

OTHER NONTARIFF BARRIERS

As we noted in the introduction to this chapter, there are many types of nontariff barriers to trade. In this section, we discuss several examples.

Customs Valuation Practices

Most tariffs around the world are collected on an ad valorem basis. As such, the amount of duty collected depends upon the price of the imported good, and how prices are determined by customs officials affects the overall volume of trade. Countries that seek to provide high levels of protection to local industries and/or want to increase tariff revenues in order to fund government activities have often instructed customs officials to use methods that would raise estimates of the value of imports. For example, officials might add a fixed percentage (e.g., 10 percent) to the listed price of the import to cover the cost of freight and insurance. This percentage often would vastly exceed the actual shipment costs. Or, officials would include fees for processing paperwork or other “services” as part of the price of the import, again subjecting the importer to higher tariff payments. Practices such as these often would lead to corruption, since importers would seek to cut deals to secure lower valuations and pay lower tariffs. In addition or as an alternative, exporters would issue false documents valuing goods at below market prices in order to reduce the trade-discouraging impact of discriminatory customs valuation practices.

Article VII of the WTO agreement sets out specific policies that member countries should follow in customs evaluation practices. The goal of this article is to ensure that fair and uniform systems for valuing imported goods are adopted and followed in all member countries. The systems that are instituted should “conform to commercial realities, and outlaw the use of arbitrary or fictitious customs values.” In most cases, customs agents are required to use a transactions basis for valuing goods. That means that the invoices accompanying the products become the basis for determining prices. However, if the invoices appear suspicious, customs agents are allowed to request further documentation from the importer (or exporter) prior to assessing duties.* As a WTO member, the United States uses a transactions cost basis to value imports. U.S. trade law forbids including as part of the imported good’s price costs incurred by importers such as transportation and insurance charges, assembly charges incurred after the goods are imported, and state and local taxes assessed on the goods after importation.

Government Procurement Policies

When governments (federal, state, and local) purchase goods and services, they are often constrained by legislative mandate to purchase from domestic producers. In the United States, for instance, there are “**Buy American**” provisions at all levels of government.[†]

The federal “Buy American” act was first passed in 1933. It requires that U.S. government agencies (except the Department of Defense) purchase domestically produced goods and services unless the domestic price is *more than* 12 percent greater than the foreign price.[‡] By law, the Department of Defense uses a 50 percent rule except on certain military purchases from NATO countries. The obvious implication of the “Buy American” act is that domestic firms can raise prices charged to the government as if there were a tariff of as much as 50 percent on competing imported items. The effect of this type of policy is to raise the cost to government of providing public services, transferring income in the process from taxpayers to domestic producers.

Other countries have policies with similar effects. For instance, for many years the United Kingdom has had a “Buy Britain” policy. Until recently, the government of Japan refused to

* For a case study on how this policy has worked in practice, see Ramon L. Clarete, “Philippines: Adopting the Transaction Basis for Customs Valuation,” WTO Web site, http://www.wto.org/english/res_e/booksp_e/casestudies_e/case37_e.htm.

† For a history of “Buy American” programs, see Dana Frank, *Buy American* (Boston, Mass.: Beacon Press, 1999).

‡ In some cases, the maximum differential is only 6 percent.

“Buy American” acts

Laws that direct purchasing agents of U.S. federal, state, and local governments to purchase American products unless comparable foreign goods are substantially cheaper.

consider the purchase of U.S. supercomputers, choosing to lease products made by Japanese producers. Also, through the way that contracts for construction projects, such as new airports, are awarded in Japan, it has been able to limit the amount of foreign participation in these projects. In the past, the French government guaranteed that a certain percentage of its purchases of electronics products came from French sources.

In 1979, rules governing international trade were amended to incorporate restrictions on local preferences by government purchasing agents. Basically, it was agreed that countries that signed a special code would grant each other equal access to government contracts. In 1994, as part of the Uruguay Round agreement, the government procurement code was expanded to include government purchases of both goods and services, to cover central government, subcentral governments, and government-owned enterprises, and to follow improvements in procurement procedures. Signatories to this agreement, known as the WTO Agreement on Government Procurement, include the United States, Canada, the EU, Hong Kong, Iceland, Israel, Korea, Liechtenstein, Japan, Norway, Singapore, and Switzerland. Each of these countries negotiated the exclusion of certain procurement from obligations imposed by the code. U.S. agencies excluded from the agreement include the Department of Transportation, the Department of Energy, the Tennessee Valley Authority, the Corps of Engineers of the Department of Defense, the Bureau of Reclamation, and the Data and Telecommunications Services of the General Services Administration.

Other federal entities not covered by the code include the U.S. Postal Service, Comsat, Amtrak, and Conrail. In addition, the code does not supersede special programs reserving certain purchases to products of small or minority-owned businesses or to blind-made goods, or to the requirements contained in Department of Defense appropriations acts that certain products (i.e., textiles, clothing, shoes, food, stainless steel flatware, certain specialty metals, buses, hand tools, ships, and major ship components) be purchased only from domestic sources.

Despite being a signatory to the WTO procurement agreement, a number of appropriation bills passed by the U.S. Congress continue to contain “Buy American” provisions. Consider, for instance, the American Recovery and Reinvestment Act passed in 2009 and signed into law by President Obama. This law was designed to provide an economic stimulus to the economy to counter the impact of the Great Recession, and about \$275 billion was authorized to be spent under this act over the years 2009 and 2010. The law stated that none of the funds appropriated or otherwise made available by the act may be used for a project for the construction, alteration, maintenance, or repair of a public building or public work unless all the iron, steel, and manufactured goods used were produced in the United States.* Some, but relatively few, of the contracts awarded under this law were subject to the WTO agreement. This was because the monies were awarded first to state governments, who then identified what projects to fund. Since state governments are not signatories to international agreements, they may (and in this case, be required to) ignore restrictions against “Buy American” policies.

Technical Barriers to Trade

Governments commonly require goods to meet certain technical regulations or standards in order to be sold in a particular country. Such standards may be imposed for informational purposes, to protect the environment, to ensure consumer safety, to enhance national security, and to guarantee product quality. While these are all appropriate national policy aims, having too many standards can pose problems for producers and exporters, and myriad conflicting and often arbitrary standards around the world can pose a substantial barrier to trade. Examples of such problematic standards abound. In the mid-1980s, the government of Japan announced that

* Three exceptions were allowed to this requirement: nonavailability of domestically made goods; local goods could only be purchased at unreasonable cost; or the purchases of domestic goods would be deemed inconsistent with the public interest. If any of these situations were deemed to hold, then a waiver of the “Buy American” provision could be obtained.

foreign-made skis would not be allowed into Japan because they were unsafe. The reason cited for this regulation was a claim that Japanese snow differed from snow in Europe or in the United States. After protests from a number of foreign governments, the ban was rescinded.

In mid-2008, Mexico complained to the WTO that the government of Brazil had changed its definition of what it would allow to be sold in the country labeled as tequila. Instead of allowing only products made using agave cactus (which comes exclusively from Mexico) to be labeled as tequila, Brazil proposed that liquor made from other plants could also be sold as tequila. Mexico argued that by relaxing product standards its producers would not be able to compete against cheaper Brazilian products.

Also in 2008, the U.S. Department of Homeland Security (DHS) placed potassium nitrate (used to make fertilizer, gunpowder, and fireworks) on its Chemicals of Interest list. Purchasers of certain amounts of items on this list are required to identify themselves to the DHS and undergo security screening. The governments of Chile and Israel complained to the WTO, fearing that exports of this product from their countries would be adversely affected. The United States countered that other countries also regulate nitrate products for security purposes. As of this writing, all three of these complaints and many others remain to be resolved.

To deal with issues such as this, the Technical Barriers to Trade Agreement forms part of the WTO agreement. Its aim is to ensure that regulations, standards, classification, and testing procedures do not create unnecessary obstacles to trade. The agreement calls for countries to be nondiscriminatory in their use of regulations and, whenever possible, to adopt international standards. Member countries are required to make public their regulations and to notify the WTO of changes in these policies.*

Health and Safety Standards

Closely related to the issue of technical standards is the goal that foods and medicines be safe for human use. Governments commonly attempt to regulate the quality of these products, but again, in some cases, regulation can be used to restrict trade. Another WTO agreement, the Sanitary and Phytosanitary Agreement (SPA), seeks to establish a basic set of rules for dealing with food safety and animal and plant health standards.

The PSA allows member countries to set their own rules, but it requires that these rules be based on science. Regulations should be applied only to the extent necessary to protect human, animal, or plant life or health. Regulations may differ from one country to the next, but if an exporting country can show that its regulations provide the same level of safety as those found in an importing country, then the importing country is expected to accept the standards found in the exporting country. As with technical standards, governments must provide advance notice of new or changed sanitary and phytosanitary regulations and establish a national enquiry point to provide information.

Not surprisingly, disputes over health and safety standards are common. The United States and the European Union (EU) have often found themselves at odds over differing standards. One long-running dispute has been over growth hormones used by U.S. beef producers. In 1989, the EU imposed an embargo on beef imports containing growth hormones. This ban has had a considerable effect on U.S. beef exports, because most cattle raised in the United States are treated with (USDA-approved) hormones. The U.S. government has taken the position that the ban represents an illegal trade measure, as there is no conclusive proof that the growth hormone has had any harmful effects on humans. In 1996, the United States initiated formal WTO dispute settlement proceedings with the EU. In 1997, an independent WTO panel ruled in favor of the U.S. position that the EU ban violated obligations made by the EU, since the ban was not based on scientific risk assessment. In 1998, an appellate panel in the WTO reaffirmed the earlier decision. In 1999, the WTO authorized the United States to impose retaliatory, prohibitive tariffs on \$117

* For more on WTO and technical standards, visit http://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm.

million of European agricultural exports. In May 2009, the United States and the EU reached a temporary agreement that allows for increased access into EU markets for U.S. exports of beef not treated with growth hormones over the period 2009–2013 and an elimination of U.S. retaliatory tariffs by 2013. It also calls for further negotiations in order to permanently resolve the dispute.

In another squabble over health standards, in 1996 the EU introduced new import controls on animals and animal products that threatened to disrupt U.S. exports to the EU. At the heart of this ban was a desire to standardize veterinary inspection practices across the countries of the EU. In turn, these standardized procedures differed from U.S. practice. The two sides to the dispute entered into negotiations in early 1997 and shortly after reached an agreement on a framework for recognizing each other's veterinary inspection systems as equivalent.

The imposition of health and safety standards by national governments is a legitimate form of government behavior. Such standards aim to guarantee that lives are not jeopardized unduly by exposure to the potentially adverse effects associated with certain products. However, as the preceding examples indicate, these codes provide a strong incentive to local producers for insisting that foreign products be made to conform to local standards or that they be restricted from the local markets even in situations where the health or safety of the local populace is not threatened. In either event, the result is for prices to rise and for local producers to claim a larger share of the market.

Failure to Protect Intellectual Property Rights*

Intellectual property is defined as the innovative or creative ideas of inventors, artists, or authors. Patent, copyright, and trademark laws exist to provide incentives to create intellectual properties by ensuring that the owners of the intellectual properties maintain exclusive control over these ideas, at least for a certain period of time. For instance, patents allow inventors the opportunity to recover their investment and the costs of creating and marketing inventions. Copyrights give authors control over the reproduction, dissemination, and public performance of their works. Trademarks assure consumers about product characteristics, such as quality.

Different countries provide different levels of intellectual property protection, and this can have significant effects on international trade. For instance, in the mid-1990s the U.S. computer software industry estimated that 49 out of 50 software programs used in China were pirated and calculated its lost export sales to China to stand at \$500 million annually. U.S. government measures aimed at Chinese copyright piracy in 1996 almost led to a trade war between the two countries. In 2001, China amended its copyright, trademark, and patent laws to comply with WTO standards on intellectual property protection. Nonetheless, the U.S. government maintains that significant problems still exist. In addition, U.S. pharmaceutical companies argue that lax copyright enforcement of their drug patents by Argentina has allowed Argentine firms to make cheap generic substitutes for both home and export markets.

Intellectual property protection of pharmaceutical products has become an increasingly controversial issue throughout the world. Developing countries complain that stringent patent protection on various medicines makes these drugs unaffordable, leading to widespread public health problems and a slowdown in the rate of economic development. An example of this concern is the criticism of American companies for not making HIV/AIDS drugs available to countries where this disease is epidemic.

Pharmaceutical companies argue that patents play an essential role in stimulating companies to engage in research and development of essential medicines. Without patents, new and better drugs to overcome this and other diseases would not be developed. Moreover, they point out that a number of drugs, including some used to treat HIV/AIDS, are not protected by patents but are still expensive due to their high production costs.

* For an excellent discussion of many issues related to this topic, see Keith Maskus, *Intellectual Property Rights in the Global Economy* (Washington, D.C.: Institute for International Economics, 2000).

Clearly, there are merits to both sides of these arguments, and long-term solutions to this problem will not be reached without government actions. For instance, new medicines for diseases, such as malaria, that affect only the inhabitants of developing countries are unlikely to be developed even with patent protection. This is so because few in these countries would be able to afford the medicines. A possible solution here is for governments to encourage development of these medicines through direct financial grants to research institutions. Similarly, for such diseases as HIV/AIDS that afflict both rich and poor countries, a profit-maximizing solution for pharmaceutical companies would be to encourage these firms to set different prices in different markets.* What would be required, then, would be government restrictions that would keep individuals in low-price countries from reselling the medicines in higher-priced countries.†

Another growing problem in international trade is trade in counterfeit goods. Such goods are sold in international markets with fraudulent (or counterfeit) trademarks. Firms with valid trademarks lose more than sales due to counterfeit goods. Fraudulent copies are often substandard and perform poorly. Legitimate manufacturers may be blamed for this performance and thereby lose their reputation and further sales of these and other products.

Because of the problems that inadequate intellectual property rights protection can cause, countries such as the United States pushed for and achieved expanded protection as part of the Uruguay Round of trade talks. The agreement on this issue, known as the Trade Related Intellectual Property Rights (TRIPs) agreement, covers patents, trademarks, copyrights, and industrial designs. It provides for minimal standards of protection in all member countries of the WTO, the organization that enforces the agreement. In some areas, such as copyrights, the agreement applies the principles of long-standing international agreements. In other areas, such as patent protection, the agreement provides for higher standards than were previously required. Despite this agreement, the issue of intellectual property rights protection remains in flux.

Export Subsidies‡

Export subsidy

A payment by a government to an industry that leads to an expansion of exports by that industry.

An **export subsidy** is a direct (or indirect) payment from a country's government to one or more of its export industries. This payment is usually related to the level of exports, and thereby enables exporters to charge a price that is lower than would otherwise be charged. With lower prices, exporters are then able to gain a larger share of the world market. As was the case with quotas, export subsidies on manufactured goods are outlawed by the WTO. Foreign export subsidies are also against U.S. law.** The WTO does permit export subsidies on primary (i.e., non-manufactured) products, and the United States is one of many countries that subsidizes the export of at least some of its agricultural products.

The economic effects of export subsidies are symmetrical with those of import tariffs. Just as tariffs cause production to expand in the import-competing sector, export subsidies lead to a greater level of output of exports than would otherwise occur. Resources are drawn from import-competing sectors. Economic waste is created because the cost of increasing output to expand export sales exceeds the revenue earned from these sales in the international market.†† Furthermore, because export subsidies encourage the diversion of sales away from a country's

* This is known as international price discrimination. For more on such behavior, see the discussion of dumping in Chapter 8.

† For more on this issue, see "Striking a Balance: Patents and Access to Drugs and Health Care," World Intellectual Property Organization Web page, www.wipo.org; and Jagdish Bhagwati, "Patents and the Poor," *Financial Times* (September 16, 2002).

‡ For a detailed study on subsidies, see Gary Hufbauer and Shelton Erb, *Subsidies in International Trade* (Washington, D.C.: Institute for International Economics, 1984). For analyses of specific subsidy policies of the United States and other developed countries, see Jack Mutti and Harry Grubert, "The Domestic International Sales Corporation and Its Effects," and Heywood Fleisig and Catharine Hill, "The Benefits and Costs of Official Export Credit Programs," in *The Structure and Evolution of Recent U.S. Trade Policy*, eds. Robert Baldwin and Anne Krueger (Chicago: University of Chicago Press, 1984).

** In the next chapter, we discuss in more detail U.S. laws related to foreign export subsidies.

†† If this were not the case, exporters would produce more even without the subsidy.

internal market to the world market, internal prices of exports rise. Consumers lose in another way as well. Specifically, they become liable for the additional taxes that are required to finance the export subsidy.

Export subsidies take on many forms in the real world. These include tax rebates, subsidized loans to foreign purchasers, insurance guarantees, government funding for research and development, guarantees against losses, and direct grants or subsidized loans. As just noted, both international law and the laws of countries such as the United States proscribe export subsidies. Under both sets of laws, the legal means for dealing with export subsidies is to impose a tariff on the subsidized exports, known as a **countervailing duty**, to offset the subsidy and raise the price of the product to the presubsidy price.

The fact that tariff protection is the chosen means to offset foreign subsidies provides domestic industry with an incentive to allege the existence of foreign subsidization. Such allegations are also often aimed at practices that may have only very indirect links to exports. Hence, governments are forced to decide whether various foreign government policies constitute export subsidies. Not surprisingly, there is often considerable ambiguity in relation to the issue. For instance, do defense contracts from the U.S. government to domestic aircraft manufacturers, such as Boeing, constitute export subsidies? Some European countries charge that these expenditures are unfair subsidies because, for instance, knowledge gained from research on aircraft design for the military can be used to design new commercial aircraft.

Countervailing duty

A tariff imposed by an importing country designed to offset artificially low prices charged by exporters.

ARGUMENTS FOR PROTECTION

We have now concluded our discussion on various forms of protection available to countries. A clear implication of this discussion has been that under many circumstances, protection is harmful to national welfare. If this is so, why do governments impose protection? Putting the question in another way, are there circumstances where protection is a valid means to a particular policy goal? As we demonstrate in the following sections, the answer to the last question is yes. In particular, protection is an appropriate policy to use to achieve certain economic and noneconomic outcomes. However, as we also demonstrate, protection is never the economically most efficient policy to achieve the objectives of the government.

In the next section, we discuss justifications for protection that have been put forward from time to time but that have no logical validity whatsoever.* This discussion is important because even though these arguments have little logical merit, they appear to have considerable popular support both in government and with the general public. After we have outlined these justifications, we turn to arguments that have greater validity. With these latter arguments we describe not only the role that protection plays in achieving the government objective but also alternative policies that could be used at lower cost to society.

Invalid Arguments[†]

PATRIOTISM Sometimes it is said that it is patriotic to erect barriers to foreign competition. Good examples of this point are the bumper stickers that read “Be American Buy American” and the advertising on television that encourages a buyer to look for the “Made in the U.S.A.” label on clothing. Such efforts are legitimate forms of persuasion in the marketplace. However, the appeal to patriotism is somewhat misplaced. This is especially true if domestic consumers switch to the

* In his book, *The Theory of International Trade* (New York: Augustus M. Kelly Publishers, 1968), Gottfried Haberler differentiates between valid and invalid arguments for protection, referring to the latter as arguments that do not merit serious discussion. For more detail, see Chapter 17 in Haberler's book.

† The examples that follow are not the full set of invalid arguments for protection. Rather, they represent some of the more popular of the current but invalid justifications for protection.

consumption of locally produced goods because protection has raised the price of foreign goods. After all, as we have seen, in many circumstances when a country imposes protection, its national well-being falls. True patriots, it would seem, should oppose policies that lower national welfare.

EMPLOYMENT One of the most often cited arguments for protection is that it creates, or at least preserves, jobs. The naive basis for this claim is that because output expands in the protected sector, employment must rise throughout the country. In general, this argument is false because it ignores effects in other markets (i.e., it ignores general equilibrium effects).

It is certainly true that protection does lead to an expansion in the protected industry. However, where will the resources come from that are required for this expansion? Clearly, the output of other industries must fall. Or, even if there are unemployed resources available for work in the protected sector, the resulting decrease in imports should be expected to lead to a decline in employment in export industries. As Keynes once noted, “Imports are receipts and exports are payments. How as a nation can we expect to better ourselves by diminishing our receipts? Is there anything a tariff can do, which an earthquake could not do better?”* In other words, it is more likely that protection serves only to redistribute jobs rather than to create them.

FALLACY OF COMPOSITION Sometimes protection is justified on the grounds that because it is good for a protected industry, it must be good for all industries. The length to which such arguments can be taken was illustrated in a brilliant satire composed by Frederic Bastiat in 1854, titled “The Petition of the Candlemakers”:

We are subjected to the intolerable competition of a foreign rival whose superior facilities for producing light enable him to flood the French market at so low a price as to take away all our customers the moment he appears, suddenly reducing an important branch of French industry to stagnation. This rival is the sun.

We request a law to shut up all windows, dormers, skylights, openings, holes, chinks, and fissures through which the sunlight penetrates. Our industry provides such valuable manufactures that our country cannot, without ingratitude, leave us now to struggle unprotected through so unequal a contest.

Do not repulse our petition as a satire without hearing our reasons. Your protection of artificial lighting will benefit every industry in France. If you give us the monopoly of furnishing light, we will buy large quantities of tallow, coal, oil, resin, wax, alcohol, silver, iron, bronze, and crystal. Greater tallow consumption will stimulate cattle and sheep raising. Meat, wool, leather, and above all manure, that basis of agricultural riches, will become more abundant.... In short, granting our petition will greatly develop every branch of agriculture. Navigation will equally profit. Thousands of vessels will soon be employed in whaling.... When we and our many suppliers have become rich, our great consumption will contribute to the prosperity of workers in every industry.... There is perhaps not one Frenchman, from the rich stockholder to the poorest matchmaker, who is not interested in the success of our petition.[†]

FAIR PLAY FOR DOMESTIC INDUSTRY The allegation is often raised that foreign producers do not play fair. Foreign workers sometimes earn lower wages. Foreign firms might not be subject to the same laws regarding pollution control, worker safety, or the like. Whatever the difference, the cry from domestic industry is for “a level playing field” on which to compete. This argument has an appealing sound to it; but like the justifications just presented, it is totally invalid. Commerce

* This quotation is taken from Haberler, 246.

[†] This quotation is taken from Leland Yeager and David Tuerck, *Foreign Trade and U.S. Policy* (New York: Praeger Publishers, 1976), 142–143.

(national or international) is not a game; it is business. And, as such, it can be ruthless. The goal of every firm is to outperform its rivals. A surefire way to achieve this end is to produce a better product at a lower price. International trade enhances this competitive process, and thereby benefits the consumer. Appeals for protection on the grounds that “fairness” requires that competition be limited are themselves totally unfair. They would deny domestic consumers the right to choose from the widest possible selection of goods in the marketplace.

PRESERVATION OF THE HOME MARKET Sometimes it is said that buying from ourselves is better than buying from foreigners because we keep the goods and we keep the money. On the other hand, when we import from abroad, we get the goods but the money flows out of the country.* If only this were true! Imagine a world where we could buy all our goods from various countries around the world, with each of these countries wanting only pieces of paper money in return. We would never have to work—except for a few moments every now and then at the printing presses. In fact, this is not the way the world works. Ultimately, goods must pay for goods. The money that flows out comes back to the country to pay for domestic exports, and we must work to produce these goods.

Valid Arguments†

GOVERNMENT REVENUE All governments need tax revenues to function. Tariffs produce government revenue. Also, for at least two reasons, tariffs may be especially attractive taxes for some governments to impose. First, there is the possibility that foreigners rather than domestic residents will actually be paying the taxes. In such circumstances domestic welfare rises. As we saw in Chapter 6, however, this would be true only for large countries that have world market power. A second reason tariffs are a popular source of government revenue for some countries is that they are easy taxes to collect. This is true because there are only so many natural ports of entry or exit in a country. All a government has to do to collect tariffs is position customs agents at these ports of entry.

Table 7.3 provides details on the fraction of government revenue accounted for by trade taxes or tariffs. As you can see, in most industrialized countries tariffs generate only a very small percentage of government revenue. The typical tax that is used instead is an income tax or a value-added tax (or both). In developing countries, the story is much different. Tariffs can account for a substantial fraction, sometimes approaching 50 percent, of the government revenue. This pattern probably reflects the difficulties perceived by the governments of developing countries of instituting and collecting an income or value-added tax.‡

While in some respects tariffs are an easy tax to collect, using commercial policy for this purpose is wasteful and inefficient. A better policy would be a general income tax. Because tariffs distort the relative prices of goods, they create deadweight costs. More production is concentrated in the relatively inefficient sectors of the economy. Income taxes tend to have less of this resource reallocation effect. Furthermore, if a goal of the government is to tax rich people at higher rates than poor, a progressive income tax can be easily devised. Finally, if the government is to be efficient in its tariff collection, it would have to know something about the demand and supply curves for every traded good. After all, the amount of tariff revenue (area *c*) depends upon these slopes.** The information that would be required to maximize tariff proceeds is enormous and simply not available for any country in the world—including the United States.

* This argument has been falsely attributed to Abraham Lincoln.

† Again, as in the preceding section, the arguments that follow are only a limited set of valid arguments for protection. One argument that is excluded from this discussion is the optimal tariff argument. See Chapter 6 for more details.

‡ See Raymond Riezman and Joel Slemrod, “Tariffs and Collection Costs,” *Weltwirtschaftliches Archiv* (1987), for a statistical analysis of this issue.

** Convince yourself of this fact by drawing several demand-and-supply diagrams with curves of different slopes.

TABLE 7.3 Tariff and Trade Taxes as a Percentage of Government Revenue

Country	Year	Percentage
Industrial Countries		
United States	2006	1.04
Canada	2006	1.27
Australia	2006	1.86
Japan	2005	0.59
New Zealand	2006	1.69
Austria ^a	2006	0.00
Belgium ^a	2006	0.00
Denmark ^a	2006	0.00
Finland ^a	2006	0.00
France ^a	2006	0.00
Germany ^a	2006	0.00
Greece ^a	2006	0.00
Iceland	2006	1.10
Ireland ^a	2006	0.00
Italy ^a	2006	0.00
Luxembourg ^a	2006	0.00
Netherlands ^a	2006	0.00
Norway	2006	0.16
Portugal ^a	2006	0.00
San Marino	2002	1.00
Spain ^a	2006	0.00
Sweden ^a	2006	0.00
Switzerland	2005	1.11
United Kingdom ^a	2006	0.00
Developing Countries		
<i>Africa</i>		
Congo, Dem. Rep.	2002	n.a.
Congo, Rep.	2003	6.65
Cote d'Ivoire	2006	n.a.
Ethiopia	2002	n.a.
Lesotho	2005	49.46
Madagascar	2006	n.a.
Mauritius	2006	16.85
Seychelles	2005	15.65
South Africa	2006	4.24
Swaziland	2003	47.66
Tunisia	2006	n.a.
<i>Asia</i>		
Bangladesh	2004	n.a.
Bhutan	2000	0.89
India	2006	n.a.
Indonesia	2004	n.a.
Korea	2005	n.a.
Malaysia	2003	n.a.
Maldives	2006	23.58
Mongolia	2003	5.67
Myanmar	2004	n.a.

Country	Year	Percentage
Nepal	2004	n.a.
Pakistan	2006	n.a.
Singapore	2005	0.05
Thailand	2006	6.18
<i>Europe (excluding industrial countries)</i>		
Armenia	2006	3.30
Belarus	2006	7.25
Bosnia Herzegovina	2005	n.a.
Bulgaria	2006	2.44
Croatia	2006	1.57
Cyprus ^a	2006	0.72
Czech Republic ^a	2006	0.00
Estonia ^a	2006	0.00
Georgia	2006	4.02
Hungary ^a	2006	0.00
Kazakhstan	2006	6.00
Kyrgyz Republic	2006	13.20
Latvia ^a	2006	0.61
Lithuania ^a	2006	0.00
Malta ^a	2006	0.00
Moldova	2005	5.51
Poland ^a	2006	0.00
Romania ^a	2005	0.00
Russia	2006	29.17
Slovak Republic ^a	2006	0.00
Slovenia ^a	2006	0.00
Ukraine	2006	4.25
<i>Middle East</i>		
Bahrain	2005	n.a.
Iran	2004	8.17
Israel	2006	0.71
Kuwait	2006	1.29
<i>Western Hemisphere</i>		
Argentina	2004	15.82
Barbados	2004	7.96
Bolivia	2006	2.10
Chile	2006	1.58
Costa Rica	2006	4.94
Dominican Republic	2005	22.95
El Salvador	2006	5.97
Jamaica	2005	10.11
Mexico	2000	4.07
Panama	2001	8.58
Paraguay	2006	8.23
Peru	2005	5.70
St. Kitts and Nevis	2003	31.28
Trinidad and Tobago	2005	4.77
Uruguay	2006	5.12
Venezuela	2004	4.68

Note: ^aEU member. Goods entering that country from non-EU members are charged EU tariffs. Proceeds do not accrue to national government.

Source: Constructed by authors from data in Tables W3 and W4, Government Finance Statistics Yearbook, International Monetary Fund, 2007.

INCOME REDISTRIBUTION Trade policy can be used to redistribute income from one sector of society to another. That is, it can be used to make some groups in society worse off and other groups better off. The most common example of income redistribution we have noted is from consumers to producers. That is, consumer surplus falls, while the profits of domestic firms rise. The desire on the part of policy makers to boost profits in certain domestic industries probably explains most protection patterns in industrialized countries and much of what we observe in developing countries.

Sometimes, as we have seen, income is transferred between other sectors. Recall the predictions of the Heckscher–Ohlin (HO) model. The HO model argues that trade benefits the abundant factor of production and harms the scarce factor. Thus, it is the scarce factor that may petition the government for protection in an effort to avoid a loss in income. The HO model would predict, then, that labor and capital tend to take opposite views with regard to commercial policies. Stephen Magee has studied the positions taken by various industry and labor groups in testimony before Congress.* He shows that in many cases, labor and capital take the same sides on the question of trade policy. For instance, both the domestic steel producers and the United Steelworkers union support trade barriers on steel. This commonality of interest suggests that, at least in the short run, the income of both groups would fall if trade barriers were not imposed. Such a situation could arise if capital and/or labor were immobile among various sectors.

In some countries, one of the stated aims of commercial policy is to tax the rich so as to aid the poor. This is done by imposing high tariffs on goods considered to be luxury items and imposing export taxes on goods considered necessities. The idea is that by imposing high import tariffs on luxuries, the rich will pay high taxes to the government. Similarly, export tariffs on necessities keep goods at home and tend therefore to lower their prices. The problem with the use of trade policy in this case is that by imposing barriers on luxuries, their prices are increased and domestic residents are encouraged to move into the production of these items. Furthermore, because necessities are now even cheaper, local producers have less of an incentive to produce them. The long-run impact of protection in this case is for the production of high-priced luxuries to rise and for low-priced necessities to fall. Clearly, this would seem to go against the assumed goals of the government.

All forms of taxation involve transfers of incomes. People who pay taxes see their incomes fall, while recipients of government benefits see their incomes rise. Commercial policy seems to be a particularly appealing mechanism to carry out income redistribution. This is so because the direct effects of any particular trade policy on those who are harmed may not be evident. For instance, when a government imposes a quota, prices rise. However, people may not be aware of the existence of the quota or of its effects in the market. Similarly, tariffs also lead to higher prices, and again these are taxes that fall directly on consumers. But, as opposed to a sales tax, a tariff is rarely collected at the point of retail sale, so it is not an obvious part of the price of the product being purchased. Thus, through trade policy a government is able to generate benefits for certain special-interest groups with taxes that are largely invisible, but no less burdensome, to the general public.

As with government revenue, an income tax is a much better tax system to use to redistribute income among groups. Deadweight costs are reduced. Moreover, the government does not have to deal with difficult issues such as defining in legal terms the concept of a luxury good.

NONECONOMIC GOALS Sometimes governments impose protection for noneconomic reasons. That is, the aim of the government is to achieve an outcome that is not directly related to economic welfare. A good example is national defense. The argument is often made that the output of local industries vital to the national defense should be protected from international

* See Stephen Magee, "Three Simple Tests of the Stolper–Samuelson Theorem," in *Issues in International Economics*, ed. Peter Oppenheimer (London: Oriol Press, 1978).

competition. This would guarantee the availability of critical products in the time of war or national emergency—one of the oldest justifications for protection. For instance, Adam Smith, an otherwise free-trade advocate, suggests in *The Wealth of Nations* that this argument is legitimate.*

Indeed, the national defense argument does provide a valid basis for protection of certain domestic markets. Economists cannot dispute the fact that for national defense reasons local production of some items may be necessary. Protection, however, is not the best policy to achieve the goal of a strong national defense.

The first problem with the national defense justification is that it is easily overused. In their book on trade policy, Leland Yeager and David Tuerck describe some of the industries that have testified before Congress as to the importance of their products to the defense effort:

Gloves, pens, pottery, peanuts, umbrella frames, paper, candles, and thumbtacks are just a few among many industries that have stressed their own strategic importance. The ordinary wood-cased pencil, its manufacturers insist, is essential in conducting all peacetime and wartime activities.... Lacemakers once sought increased protection on the grounds that they could convert their machinery to make mosquito netting in case of war in the tropics. A linen thread manufacturer once stressed that the fish netting his industry makes is important to the nation's wartime food supply and that the netting is also used for camouflage. Tuna fishermen have called their boats auxiliary vessels for the Navy. Producers of... embroidery have told how they bolster morale by making shoulder patches for soldiers' uniforms.†

Clearly, as this excerpt suggests, nearly every industry can, if it wants, provide to policy makers a story as to the strategic nature of its product, and in some cases it may be difficult for the policy makers to reject these claims.

A second problem with the national defense argument for protection is that, in some cases, national defense needs might be better served by expanding imports rather than contracting them. That is, the domestic availability of certain products in times of national emergency is what is necessary to ensure defense-related needs. The cheapest way to guarantee that these needs are met might be for the government to purchase large quantities of certain goods in world markets during peacetime and then store these goods so that they would be available during national emergencies. The alternative to this type of program would be trade barriers that serve to guarantee that the product in question is produced on domestic soil. The costs of this program are the usual deadweight losses during both good times and bad. Thus, the national defense argument makes sense only if production on domestic soil is what is required for national defense purposes.

The United States is one of many countries that has special laws to limit the importation of defense-related products.‡ This authority, provided in Sections 232 and 233 of the Trade Expansion Act of 1962, has been used only on rare occasions to limit imports, most notably in the case of oil imports from specific countries such as Iran and somewhat more recently as the authority to negotiate VERs on machine tools. One of the reasons that this provision is not used more often is probably that the United States has comparative advantage in many defense-related products. In fact, the United States is much more likely to prevent the export of defense products than it is to prevent their import.

* For a more recent examination of the national defense argument, see T. N. Srinivasan, "The National Defense Argument for Government Intervention in Foreign Trade," in *U.S. Trade Policies in a Changing World Economy*, ed. Robert Stern (Cambridge, Mass: MIT Press, 1986). See also the comments to this article in this same volume by Michael Intrilligator and Elhanan Helpman and Srinivasan's postscript. Earlier discussions of this issue can be found in Wolfgang Mayer, "The National Defense Tariff Argument Reconsidered," *Journal of International Economics* (1977) and Earl Thompson, "An Economic Basis for the 'National Defense Argument' for Aiding Certain Industries," *Journal of Political Economy* (1979).

† Leland Yeager and David Tuerck, *Foreign Trade and U.S. Policy*, 145.

‡ For more on U.S. trade law, see Chapter 8.

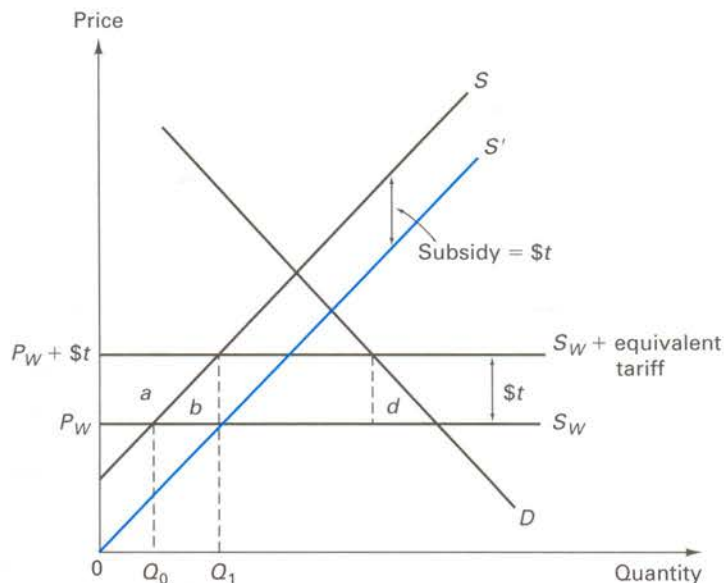


FIGURE 7.2 Welfare Effects of a Domestic Production Subsidy

A better policy than protection to guarantee that a certain level of domestic production of defense-related products is achieved is through a direct subsidy to the industry coupled with free trade. To understand this point better, consider Figure 7.2. There, we show the market for a product whose continued domestic production is considered vital to the national defense. As the graph clearly shows, if the country were to follow a policy of free trade, domestic output would equal Q_0 units. Suppose policy makers have decided that, for defense reasons, domestic output should increase to Q_1 units. Clearly, one way to achieve that goal would be to impose a tariff of $\$t$.

Consider instead a per unit production subsidy of $\$t$ paid by the government to domestic manufacturers coupled with free trade. The effect of the subsidy on producers would be lower their cost of producing each unit by $\$t$ (since the government is providing them with that amount) and thereby to shift the domestic supply down by the amount of the subsidy. This is illustrated by the supply curve labeled S' . Because of the subsidy, domestic producers would expand their output to the point where their subsidy-augmented supply curve crosses the world price line. That is, they would choose to produce Q_1 units. What is the economic cost of the subsidy program? First, there is the subsidy itself. From the diagram, we can easily see that producers receive $\$a + \b . That is, they receive $\$t$ (the length of the side of area a) times every unit produced domestically (Q_1 units). Where does the government get the money needed to finance the subsidy? The answer must be that it is paid by taxpayers, who are assumed to be in the consumer sector.

What do producers gain under the subsidy? The answer is that domestic profits rise by $\$a$. The remainder of the money they receive goes to pay for the additional cost of resources required to expand production from Q_0 to Q_1 units. Thus, just as with tariffs, we can think of $\$b$ as a deadweight cost of government policy, in this case the cost of the subsidy program. Putting it all together, consumers lose $\$a + \b in the form of higher taxes, while producers gain $\$a$ in profits. The cost to society is area B , the production deadweight cost of the subsidy. This compares favorably with a tariff of $\$t$ that would produce deadweight costs of $\$(b + d)$. That is, the difference between a tariff and a subsidy is that a tariff generates both a production deadweight cost and a consumption deadweight cost. With the subsidy and free trade, goods sell at world prices, so that there is no consumption deadweight cost.

Finally, it is important to note that subsidies are superior to protection in another way: They are more visible. If governments are making payments on a regular basis to domestic industry,

it becomes a part of the public record. Unlike with trade barriers, it becomes easy to understand the costs to society of supporting any given industry. Thus, one would expect that industries with only an indirect link to national defense would have a harder time winning subsidy payments than they might gaining import protection.

INFANT INDUSTRY PROTECTION One of the oldest justifications for protection is the **infant industry argument**.^{*} This basis for protection is built on the notion that certain industries require temporary protection from foreign competition to grow and prosper. This may be because the initial costs of production tend to be high. However, given time and access to a protected market, firms will expand production and learn the techniques necessary to lower their costs and to be internationally competitive. In fact, after some period of time, the protection can be removed, and if the government has made the right choices regarding whom to protect, the industry will thrive.

There are a number of problems with the logic of the infant industry argument. First, it presupposes that protected firms will work to lower costs, even though they are destined to face increased foreign competition if they are successful. It would seem more likely that protecting the infant industry provides the infant with an incentive never to grow up.

Second, even if the industry responds by improving its productivity, the argument seems to imply that governments are better able to pick winners than the private market is. After all, it is not uncommon for industries to lose money when they first get started. One of the functions of the financial sector of the private economy is to provide funds to firms to enable them to produce until they become profitable. Moreover, when the initial funding comes from private sources, domestic residents are not subject to the higher prices that are the inevitable result of government-imposed protection.

The validity of the infant industry argument is better confined to those situations where the government is in a superior position to support the development of certain industries. Such a situation comes about on occasion in developing countries when the infant industry is one whose growth will lead to an expansion of the infrastructure of the economy. That is, sometimes firms must build roads, expand airports, extend public utility services, teach workers certain generally applicable work habits, and the like before production can take place. When these improvements are made, society benefits, but the industry may never be compensated for the expense it has incurred in the process. Protection is one means to ensure that the industry is compensated for providing these services to the economy.

Despite the points just discussed, infant industry protection is not the most efficient way to encourage certain industries to develop and grow within an economy. Clearly, as was the case with national defense protection, if the goal is to expand production, then a production subsidy with free trade is more efficient than protection. Moreover, if what the government wants is expanded infrastructure (e.g., improved roads, harbors, airports, or better-trained workers), then, under almost all circumstances, it would be more efficient for the government to provide these goods directly rather than to impose protection so that they might be provided by the private sector.

DOMESTIC DISTORTIONS A well-known theorem in economics states that perfect competition is Pareto optimal. That is, if perfect competition is reached, then no one in the economy can be made better off without hurting someone else. It is virtually always the case that perfect competition is not achieved in the real world. According to the theory of the second best, if there

Infant industry argument

The argument holding that new industries may need temporary protection until they have mastered the production and marketing techniques necessary to be competitive in the world market.

^{*} For an advanced theoretical treatment of this topic, see Marc Melitz, "When and How Should Infant Industries Be Protected?" *Journal of International Economics* (2005). For a critique of this argument, see Robert Baldwin, "The Case Against Infant-Industry Tariff Protection," *Journal of Political Economy* (1969). For a possible example from U.S. history, see Douglas Irwin, "Did Late Nineteenth Century U.S. Tariffs Promote Infant Industries? Evidence from the Tin Plate Industry," *Journal of Economic History* (2000).

are distortions present in an economy that keep it from achieving perfect competition, then it may be best for governments to choose policies that add more distortions. For instance, government policies are put into place to aid certain groups, and, as a consequence, protection may be required to guarantee that the goals of the program are not undermined or that the program does not become too costly.

Consider, for instance, U.S. farm policy. The government has decided to help domestic farmers through a system of price supports. The effect of this policy is shown in Figure 7.3. In autarky and in the absence of a government program, the product would sell for P_0 . The effect of the price support program is to guarantee farmers a price of P_1 . This causes production to rise to Q_1 , consumption to fall to Q_0 , and, consequently, the government to purchase the difference between these two levels, Q_0Q_1 units. Now, let's introduce international trade. Suppose the world price is P_W . Clearly, the government cannot follow a policy of free trade. It has guaranteed to pay P_1 for the product. If trade is allowed, importers would buy farm products at the low world price only to sell these goods at a higher support price. The costs of the farm program would become enormous. Thus, due to the existence of a distortionary policy—that is, the price support program—a second distortionary policy—namely, protection—is necessary.

Many protectionist policies are in place in the United States and elsewhere for second-best reasons. But as the name implies, tariffs are not first-best policies. Rather, better policies would attack the distortions (e.g., eliminate the government programs) that have generated the need for protection.

PROTECTING THE ENVIRONMENT Production of some types of goods can generate negative externalities. These are unwanted by-products of one activity that raise the cost of other activities. For instance, steel production tends to pollute the air, making it harder for other nearby businesses, such as restaurants or hospitals, to maintain clean establishments. Externalities are an example of market failure. That is, the social cost of producing steel (which would include the additional costs borne by other local businesses) exceeds the actual cost incurred by steelmakers.

In the absence of regulation, steelmakers do not take these extra costs into account when they decide production levels. Hence, market forces will tend to lead to outcomes where more

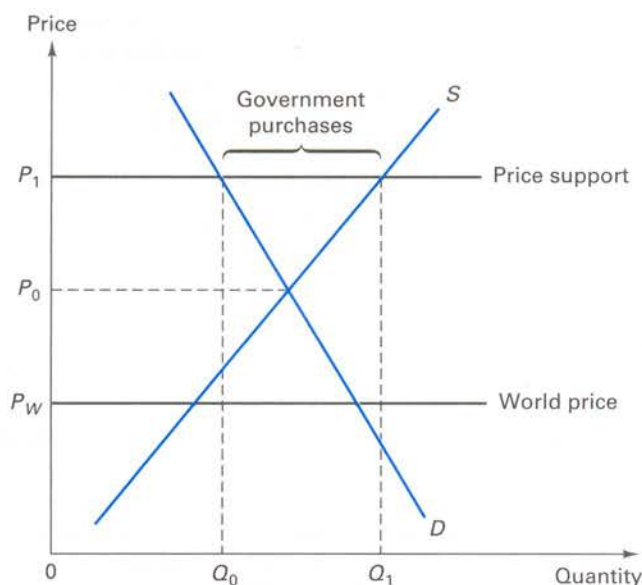


FIGURE 7.3 Price Supports and Tariffs

steel is produced than is socially optimal. Market failures imply a role for government. Using our steel example, the government could impose a pollution tax on the steel plant to discourage production.

International trade poses new problems for policy makers who attempt to set policies to deal with market failures such as externalities. If production occurs in one country and pollution is thereby transported across its borders, there may be a role for trade policy (e.g., a tariff or quota) by the country receiving the pollution to discourage the polluting industry. However, trade policy will never be the best way to attack the problem. It works well only if the country imposing the policy is a major customer of the country generating the pollution. If not, the policy will have little effect on the foreign country. In either case, absent local pollution taxes, increased trade barriers will also encourage expanded production and pollution at home.*

Alternatively, the fear of environmental decline has been cited as an argument for the retention of certain barriers to trade. The debate over the creation of a North American Free Trade Agreement (NAFTA) offers an illustration. Some environmentalists in the United States opposed NAFTA on the grounds that it would raise the level of global pollution. Their argument was essentially as follows: Over the years leading up to the treaty, American firms had been subject to increasing pressure to reduce pollution emissions, through both more intensive regulation and higher taxes. The passage of NAFTA would allow U.S. firms to relocate in Mexico, where environmental standards are lower and less well enforced. The end result would be an expansion of pollution in Mexico and a loss of leverage of the U.S. government in trying to curtail environmental degradation. Thus, the environmentalists argued, trade and investment restrictions should remain in place.†

The argument that developing countries with lax environmental standards will attract foreign manufacturers who want to escape environmental standards in their own countries is known as the **pollution havens hypothesis**. And this hypothesis has become a major objection to lowering barriers to trade. While this reasoning may have some economic validity, it misses a number of important points. First, it assumes that international differences in pollution containment costs are a primary determinant of industrial location. Data on U.S. manufacturing suggests that pollution abatement costs average only 1.38 percent of total value added. Even in those sectors where pollution costs are high, they seldom exceed 5 percent of value added. Thus, everything else constant, U.S. firms would appear to gain little in competitiveness by relocating even to countries where (unlike Mexico) there are no pollution standards. Moreover, even if U.S. firms do relocate, it is likely that they would install new capital equipment in their plants. Such equipment is almost uniformly cleaner than older technologies. Based on recent studies of the role imports have played in recent pollution reductions in U.S. manufacturing, that logic seems to hold well. See Global Insights 7.1 for more details.

Second, from the analysis in Chapters 3 and 4, we know that lower barriers to trade will cause liberalization along the lines of comparative advantage. All available studies suggest that most developing countries, where environmental laws may be lax, have comparative advantage in agriculture and labor-intensive manufactures and comparative disadvantage in environmentally dirtier capital-intensive manufactures. Thus, freer trade policies by the United States and other richer countries, especially toward developing countries, would likely produce specialization in relatively “clean” industries in the developing world.

Finally, freer trade will stimulate economic growth and raise the standard of living in the developing world. Recent studies have shown that environmental quality improves as standards

Pollution havens hypothesis

Heavily polluting manufacturers will relocate from rich countries to poorer countries to escape environmental regulations, thereby causing world pollution to rise.

* For additional discussion on trade and environmental issues, see Kym Anderson and Richard Blackhurst, eds., *The Greening of World Trade Issues* (Ann Arbor: University of Michigan Press, 1992); and Alison Butler, “Environmental Protection and Free Trade: Are They Mutually Exclusive?” *Review* (Federal Reserve Bank of St. Louis, 1992). Chapter 8 contains a trade policy case study of a role that WTO plays in environmental protection.

† For more on NAFTA, see Chapter 9.

of living rise. That is, improving the environment is a luxury good; the richer people are, the more they are willing to spend on it.*

Under WTO rules, member countries can adopt trade policies designed to protect the environment. However, countries must be careful that such rules are not discriminatory, are not imposed arbitrarily, and are not used as disguised protectionism. In the past few years, a dispute panel of the WTO ruled in favor of a member country that had prohibited the importation of asbestos to protect its construction workers and citizens. WTO panels also have supported measures to protect sea turtles from incidental capture in commercial fishing and trade measures taken to limit air pollution.

Global Insights 7.1

Trade, Technology, and U.S. Pollution

Total air pollution created by U.S. industry has declined significantly since the early 1970s. Nitrogen oxide emissions have fallen by 30 percent, while sulfur dioxide emissions are down by almost 70 percent. At the same time, the real value of U.S. manufacturing output has risen by more than 70 percent. These changes could be due to either (or both) of two factors: technological advances in manufacturing or changes in the types of goods manufactured in the United States. For the past several decades, U.S. environmental laws have sought to encourage firms to adopt low-pollution technologies, without affecting the mix of goods produced or consumed. As noted in this chapter, critics of international trade have pointed to the fact that many developing countries have little or no environmental protection laws. This could provide an incentive for manufacturers, especially major polluters, to locate production facilities in these countries. It is important to know to what extent environmental laws have achieved their stated purpose or whether manufacturers have relocated production to take advantage of pollution haven countries.

In a recent study, Arik Levinson of Georgetown University tackles this question.* Using U.S. data over the period 1972–2001,

he estimates how much of the environmental cleanup comes from changes in technology versus changes in the mix of industries. He shows that for the “typical air pollutant, the cleanup from technology is at least as large as the cleanup from compositional change, and for some it is more than two times as large.” He then goes on to examine whether the decline in pollution due to the changing composition of industrial output can be explained by increased imports. Included in his analysis is the pollution cost of producing intermediate goods needed to produce various final goods. Levinson shows that the composition of U.S. imports has changed toward cleaner goods even including intermediate goods, and that increases in international trade can account for “at most only half of the pollution reductions from the changing composition of U.S. manufacturing.”† He concludes that pollution havens play a relatively small role, and that technology is the major reason why pollution levels have diminished.

Thus, it appears that the environmental concerns of free-trade opponents may be overstated, and that pollution reduction is something that can be achieved in manufacturing sectors around the world without restricting international trade.

* See Arik Levinson, “Technology, International Trade, and Pollution from U.S. Manufacturing,” *American Economic Review* (2009).

† These findings echo and elaborate on similar results reported in Matthew A. Cole, “U.S. Environmental Load Displacement: Examining Consumption, Regulations and the Role of NAFTA,” *Ecological Economics* (2004); Josh Ederington, Arik Levinson, and Jenny Minier, “Trade Liberalization and Pollution Havens,” *Advances in Economic Policy and Analysis* (2004); and Shanti Gamper-Rabindran, “NAFTA and the Environment: What Can the Data Tell Us?” *Economic Development and Cultural Change* (2006).

* These arguments correspond to a series of points made in Gene M. Grossman and Alan B. Krueger, “Environmental Impacts of a North American Free Trade Agreement,” in ed. Peter M. Garber, *The Mexico–U.S. Free Trade Agreement* (Cambridge, Mass.: The MIT Press, 1993).

STRATEGIC TRADE POLICIES In Chapter 5, we noted that recent research in the theory of international trade has explored the role of increasing returns to scale in explaining international trade flows. When increasing returns are present, domestic markets will no longer be characterized by perfect competition. Rather, firms in any given industry will tend to be fewer in number, with the actions of one affecting the actions of another. And, once international trade is allowed in such industries, actions taken by firms in one country will influence the actions of firms in other countries.* Under these conditions, policies such as import tariffs or export subsidies may be a way of raising domestic welfare. If governments implement trade policy for these reasons, they are said to be engaged in strategic trade policy.

The idea of strategic trade policy may be best illustrated by considering two examples. In the first, suppose that Brazil imports computers from IBM. Suppose further that IBM is the only producer of computers in the world. That is, Brazil is importing from a monopoly. This situation is depicted in Figure 7.4. In the figure, D_B denotes Brazil's demand curve for computers. MR_B denotes the marginal revenue curve corresponding to this demand curve. Let the horizontal line, C , indicate IBM's marginal cost curve. Under free trade, IBM would maximize its profits by equating marginal cost with marginal revenue, exporting Q^* units to Brazil at a price of P^* per computer. The profits IBM would earn would be given by the shaded area in the diagram.

Suppose now that, within Brazil, manufacturers exist that could produce computers profitably if their price were to rise above P^* . That is, so long as IBM does not raise its price above P^* , it has the market all to itself. Under such (extreme) circumstances, Brazil should impose a tariff on computers. What would be the result of this tariff? So long as IBM wants to keep its market to itself, it would not raise its price. Since its price has not changed, neither would its sales to Brazil. Thus, consumers would not be hurt. The only result of the tariff would be that some of IBM's monopoly profits would now remain in Brazil in the form of government



FIGURE 7.4 Trade Policy and Foreign Monopoly

* To understand this point better, think about the differences between the following alternative situations: If a textile mill in Taiwan decides to increase its output by 10 percent, this will have no impact on the production plans of a textile mill in South Carolina. On the other hand, if Toyota were to announce an increase in production of 10 percent, this could influence the production planning of Ford or General Motors.

revenue. How high should Brazil's tariff be under these conditions? Clearly, Brazil could increase its tariff until it captured all of IBM's monopoly profits, provided that IBM maintains a policy of keeping its price at P^* to restrict competition. Note that this is a very special situation. A tariff established by Brazil would impose no deadweight costs on either country because neither prices nor trade levels change. It would merely recapture extraordinary profits that had previously been paid by its citizens to the foreign producer (IBM).

A second example of strategic trade policy is provided by Paul Krugman in his analysis of the legitimacy of arguments for free trade.* Suppose that there are two countries capable of building a new passenger jet aircraft, Europe and the United States, and one firm in each country that could produce the good, Airbus and Boeing, respectively. Assume that each firm is faced with the choice of whether to enter the market and that so long as only one firm does, it will earn profits from doing so. Finally, assume that all airplane sales of either firm will be to a third country so that producer surplus and national welfare will be identical.

Table 7.4 provides details on the strategic game played by each of the firms. Consider the first matrix. Boeing's (Airbus's) choices to produce or not are denoted by the letters P and N (p and n) along the side (top) of the matrix. Inside each cell of the matrix are the profits that accrue to each firm given its decision and that of its rival. Boeing's profits are listed first in each cell.

If each firm makes its decision at the same time, then there is no unique solution to the game. However, if Boeing has a head start, then it will decide to produce the aircraft, and Airbus's best strategy is to stay out of the market. Given this situation, in the absence of any government intervention, Boeing will enter the market, make profits of 100, and deter entry from Airbus.

Is there anything that Europe can do about this situation? The answer is yes. Suppose that Europe guarantees an export subsidy to Airbus of, say, 10, regardless of whether Boeing produces or not. This outcome is illustrated in the second matrix in Table 7.4. In this case, Airbus is assured of profits whether or not Boeing enters the market. Therefore, Airbus will produce the airplane and Boeing's best strategy is not to enter. Thus, the solution of the game moves from the upper right-hand cell to the lower left-hand cell of the matrix. A subsidy of 10 raises Airbus's profits by 110. Of this, 100 represents a transfer of profits and economic welfare from the United States to Europe.

TABLE 7.4 The Effects of a Hypothetical Strategic Trade Policy

		<i>Payoff Matrix (no subsidy)</i>			
		<i>Airbus</i>			
		<i>P</i>		<i>n</i>	
Boeing	<i>P</i>	-5	-5	100	0
	<i>N</i>	0	100	0	0
		<i>Payoff Matrix (European subsidy of 10)</i>			
		<i>Airbus</i>			
		<i>P</i>		<i>n</i>	
Boeing	<i>P</i>	-5	5	100	0
	<i>N</i>	0	110	0	0

* This example is discussed in more detail in Paul Krugman, "Is Free Trade Passé?" *Journal of Economic Perspectives* (Fall 1987). In this important and highly readable article, Krugman concludes that even though economists have found important arguments for imposing protective policies, free trade remains essentially the right policy for governments to pursue.

Economists have explored other situations where strategic trade policies may be applied. Under some market conditions, the appropriate government policy is an import quota. Under others, the correct policy is a subsidy to encourage domestic research and development efforts.*

Given the examples just discussed, it would seem that strategic trade policy is an important and legitimate justification for the use of tariffs and quotas. This may not actually be the case. First, the types of situations where strategic policy should be applied are very specialized and depend crucially on assumptions about how firms behave. If, for instance, two firms compete internationally with each other by changing production levels, the optimal strategic policy may be an export subsidy. This was the case with our airplane example. If these same two firms compete by changing prices, however, the optimal policy becomes an export *tariff!*

Second, even if we know how firms compete with each other, other assumptions that must hold will often be violated in the real world. For instance, our example of the competition between Boeing and Airbus suggests that Europe has an incentive to subsidize airline production. The model as presented, however, ignores the fact that some parts of American airplanes are made by European firms. Moreover, a substantial number of the component parts of Airbus airplanes are made by American firms. Thus, any European policies aimed against Boeing could end up hurting European parts producers and helping American parts producers. Moreover, by eliminating the competition from Boeing, European airline companies might have to pay more for less desirable airplanes. The net result then is ambiguous. It is no longer clear that the export subsidy is the right policy.

Another problem with the use of strategic trade policy is that the gains from these policies depend upon the response of the foreign government. Just as was the case with the optimal tariff argument for protection, if the foreign government retaliates, then any initial gains may be lost. At the very least, they will be reduced.

Finally, even though it is possible to show that in some cases tariffs, quotas, or subsidies are welfare-improving policies when countries apply them strategically, economists have yet to establish that these policies are the best policies that can be implemented. This is an important area for economists to study.

Summary

1. While tariffs are the most universal form of protection found in the world today, nontariff barriers, such as quotas, subsidies, and government policies related to procurement or to health and safety standards, affect a large share of international trade.
2. Quotas are limits on the volume or value of international trade. Because quotas restrict the quantity of goods traded, they generate higher prices, raising domestic profits and deadweight costs to society.
3. The economic effects of quotas depend in part on how they are administered. If quota licenses are auctioned by the government in competitive auctions, then the effects of the quotas are similar to those of tariffs. If the quota licenses are given to foreigners in the form of voluntary export restraints, then quotas produce large deadweight costs.
4. Even if quotas are auctioned, because they restrict quantities rather than prices they tend to be more restrictive than tariffs over time. Moreover, the arbitrary way in which quota levels are determined and quota shares are allocated will have no connection with underlying comparative advantage.
5. Other nontariff barriers present a problem to policy makers interested in freeing up international trade. This is true because these barriers tend to be product and country specific. It is difficult, if not impossible,

* For an excellent textbook-level survey of strategic trade policy, see Neil Vousden, *The Economics of Trade Protection* (Cambridge, England: Cambridge University Press, 1990). For a more advanced discussion of these issues, see Elhanan Helpman and Paul Krugman, *Trade Policy and Market Structure* (Cambridge, Mass.: MIT Press, 1989). Real-world experience with strategic trade policy appears to be limited. Douglas Irwin argues in a fascinating paper that the rivalry between the Dutch and the British in the sixteenth century over East India trade represents a classic case of strategic trade policy in action. See Douglas Irwin, "Mercantilism as Strategic Trade Policy: The Anglo-Dutch Rivalry for the East India Trade," *Journal of Political Economy* (1991).

to design international rules of conduct that would effectively block many of these practices.

- Most of the commonly heard and therefore important arguments for protection are totally invalid. That is, in these cases protection fails to achieve its stated justification.

- There are valid arguments for protection, such as government revenue and national defense, but protection used for these reasons is never the most efficient policy.

Exercises

- In what ways are tariffs and quotas similar in their effects? In what ways do they differ?
- Suppose that prospective importing firms hire lobbyists to help them secure from government authorities the right to import quota-restricted items into a country. How much would importers as a group be willing to pay lobbyists for their services? Explain. Suppose lobbyists are paid this amount. What happens to domestic welfare in this case?
- Suppose that a country requires special inspections on all imported food but exempts domestic production from similar inspection. What effect would this have on imports, domestic production, prices, and quantity consumed? Explain fully.
- Show graphically that a monopolist will charge a higher price and produce at a lower level of output with a quota protection than with a tariff protection that yields the same level of imports.
- The United States has used quotas to protect its domestic sugar industry. What has been the likely impact of these quotas on the world price of sugar (relative to the price that would exist under free trade)? Explain.
- Is the optimum tariff argument a valid argument for protection? (Hint: See Chapter 6) Is it the best policy for this purpose? Explain.
- Consider the example of airplane building and strategic trade policy described in the text. Suppose that the United States matched Europe's export subsidy with a subsidy of 10 to Boeing. How would this policy affect the solution to the game? What would be the welfare effects of this policy on the United States and Europe?
- The United States automakers have announced programs to build and market electric cars. Should the United States impose temporary protection on this product to guarantee U.S. commercial success? Why or why not?

- Suppose that the domestic demand and supply for hats in a small open economy are given by

$$Q = 80 - P \text{ (demand)}$$

$$Q = 40 + 2P \text{ (supply)}$$

where Q denotes quantity and P denotes price.

- If the world price is 10, what is the free trade level of imports?
 - Suppose that the country imposes a quota of 4 units. How much will the domestic price rise?
 - What will be the welfare effects on this country of a quota of 11 units?
 - Suppose instead that this country negotiates a VER of 11 units with its chief foreign supplier. What are the welfare effects of this policy?
- According to the analysis in this chapter, VERs are a more costly form of protection than tariffs or other types of quotas. Why do countries choose to protect certain industries using this form of protection?
 - Suppose that Macland protects its motorcycle industry with a quota that raises domestic prices by \$150 per unit. If Macland's government were to then impose a tariff of \$120 per motorcycle, what would happen to Mac motorcycle imports? What would be the welfare effects of this tariff on the Mac economy?
 - Under what circumstances can commercial policy be an effective tool to solve world environmental problems? Under what circumstances will commercial policy be not very effective? In general, which set of circumstances is more likely to exist in the real world?

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