

Chapter 11

The Theory of Trade Policy

Governments have long intervened in international trade. This chapter analyses the consequences of government restrictions on trade. Any restriction will create a wedge between the domestic and world prices that reduces the potential gains from trade. This wedge can be most simply represented as a tax on imports, a *tariff*, and historically this has been the most important instrument of trade policy. The following two chapters will extend the analysis to consider other instruments of trade policy, all of which have the effect of introducing a wedge between domestic and world prices.

Figure 11.1 illustrates the general equilibrium impact of an across-the-board tariff. As in Figure 4.7, the export good is on the vertical axis. With a tariff, the domestic price line DD is steeper than the world price line WW , i.e. the relative price of the import good is higher in domestic than in world markets. Producers respond

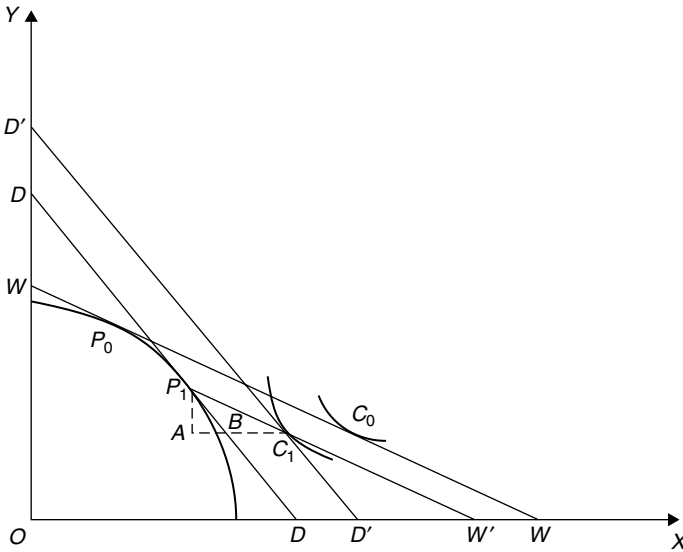


Figure 11.1. General equilibrium effects of a tariff.

to the new price signal by shifting the output mix towards more of the import-competing good and less of the export good, from P_0 to P_1 . From the new output point the economy can still trade along the world price line, although the value of the consumption bundle measured at world prices is now less (OW' instead of OW).¹ Consumers, however, observe the domestic price ratio and will buy less of the import good than they would if they could trade at world prices. As long as the domestic price line is not as steep as the autarchy price line, there will be some trade, but it will be less than

¹GDP should be measured in world prices because they are the country's opportunity cost prices. In practice, GDP is measured with domestic relative prices which overvalue the protected goods. In Figure 11.1 the value of output measured in units of the export good, OD , is higher with protection than with free trade and the value of output, OD' , is higher still, because units of the import-competing good are being valued higher than WW in terms of the export good, but neither the output-mix above P_1 nor the consumption mix above C_1 is attainable at relative prices which value the import good above the world price.

if consumers were able to maximise their utility along the world price line.²

The difference between how many imports consumers receive in exchange for the nation's exports and total imports (i.e. the horizontal distance of the wedge between world and domestic price ratios, BC_1) is the tariff revenue which accrues to the government. The higher the tariff (BC_1/AB), the steeper the domestic price line, the bigger the wedge, and the more gains from trade are foregone.

Figure 11.1 shows that for a small country a tariff is welfare-reducing. Both producers and consumers fail to realise all of the gains from trade open to them because they must exchange goods at the domestic price ratio rather than at the true opportunity cost prices for the country, i.e. the world price ratio. The welfare loss has two components: the loss of output, valued at world prices, from producing less of the export good and the loss of consumer utility from not consuming on the highest feasible indifference curve.

This powerful conclusion needs to be modified for a large country. Imposing a tariff shrinks the trade triangle; P_1AC_1 is smaller than the triangle with hypotenuse P_0C_0 . The offer curve shifts closer to the import-axis, leading to an improvement in the terms of trade. In Figure 11.2 (and in Figure 11.1) the world price line becomes flatter, and the large country can achieve a higher indifference curve than the small country could. The positive terms of trade effect will offset some of the costs of a tariff, and might be sufficiently strong for consumption to be on a higher indifference curve than with free trade.³

²A point such as C_1 must exist, because the indifference curve at P_1 is steeper than DD and the indifference curve at C_0 is flatter than DD . At this consumption point, consumers purchase less of the imported good, X , and may purchase less of the export good, Y , because their income has fallen, or more of Y because its relative price has fallen.

³In Figure 11.1, as the world price line becomes flatter, so does the domestic price line and the output mix will be somewhere to the left of P_1 . The flatter trade line now starts from this point on the PPF, and the consumption point could be on a higher or lower indifference curve than C_0 .

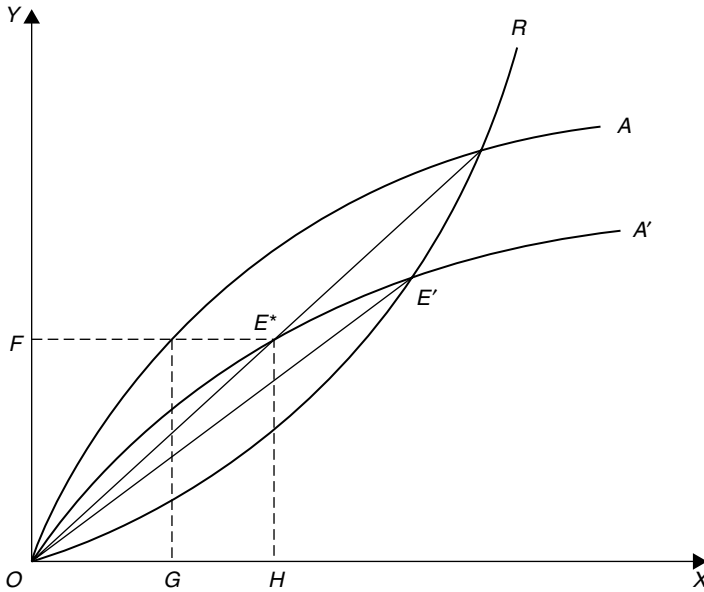


Figure 11.2. Offer curve analysis of a tariff.

Note: If country *A* here is the country analysed in Figure 11.1, then $OF = P_1A$, $GH = BC_1$ and $OG = AB$, and the slop of OE is the same as that of WW and P_1W' . The movement from E^* to E' represents the unambiguously beneficial terms of trade effect on *A*.

The distributional consequences of a tariff can be analysed in a parallel manner to Chapter 6. If all factors are mobile across sectors, then a tariff by increasing the relative price of the import good increases the real income of the factor of production used intensively in the import-competing activity and reduces the real income of the factor used relatively intensively in the export activity. With specific factors, a tariff increases the real return to the factor specific to the import-competing activity and reduces the real return to factors specific to export activities. Thus, in the short-term we often observe all factors in an import-competing industry uniting to lobby for protection from imports, but in the long term the general pattern is of labour unions being more protectionist in high-income countries and capitalists being more protectionist in labour-abundant countries. The position of landowners depends upon whether land is relatively

abundant or scarce, e.g. farmers tend to be free traders in western Canada or Australia and protectionist in western Europe or Japan.

In the general equilibrium model of Figure 11.1, the price wedge could be caused by either a tax on imports or a tax on exports. Both reduce the relative price of the export good in the home market, reduce the level of trade and result in welfare loss for a small country and in an ambiguous welfare outcome for a large country. This result, first pointed out by Abba Lerner, is known as the *Lerner symmetry theorem*.

Partial Equilibrium Analysis of a Tariff

A tariff can also be analysed using the partial equilibrium model of Chapter 5. For an import-competing activity, a tariff of t percent raises the domestic price to $(1 + t)P_w$. In a small economy (Figure 11.3), the higher domestic price induces an increase in domestic production from OQ_1 to OQ_2 , a reduction in domestic demand from OQ_4 to OQ_3 and a reduction in imports from Q_1Q_4 to Q_2Q_3 . The government receives tariff revenue equal to $t.P_w$ multiplied by Q_2Q_3 (area). There is a loss of consumer surplus (area $a + b + c + d$), and an increase in producer surplus (area a). With equal weight to each unit of all components of the welfare change, the gain to producers and in government revenue is smaller than the loss to consumers. The net welfare loss is equal to the two triangles, $b + d$, sometimes called *Corden triangles*.⁴

If the country is large, then the world price line shifts down as a result of the reduction in import demand (Figure 11.4). The gap between the old world price, P_w , and the new domestic price, $P_d^* = (1 + t).P_w^*$, is smaller than for a small country. The impact on producer and consumer surplus is less in Figure 11.4 than in 11.3, but tariff revenue is larger (it is levied at the same rate, t , but imports are larger because the domestic price is lower ($Q_5Q_6 > Q_2Q_3$). A

⁴The welfare triangles model was pioneered by Max Corden (1957) and Harry Johnson (1960).

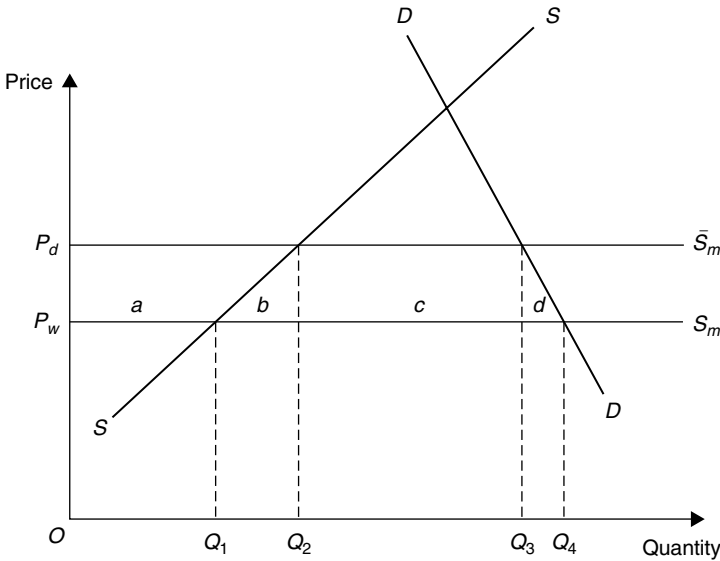


Figure 11.3. Partial equilibrium analysis of a tariff imposed by a small country.

Note: S_m is the import supply curve with no tariff; \bar{S}_m is the import supply curve with a tariff equal to $P_d - P_w$.

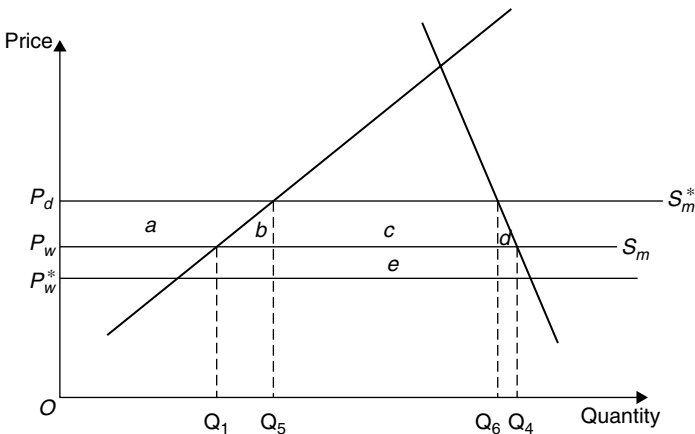


Figure 11.4. Partial equilibrium analysis of a tariff imposed by a large country.

Note: S_m is the import supply curve with no tariff; S_m^* is the import supply curve with a tariff equal to $P_d - P_w^*$ where P_w^* is the world price after imposition of the tariff.

large country suffers less than a small country from imposing a tariff, and may even have a net gain. There is a net gain if the portion of tariff revenue lying below P_w in Figure 11.4 is greater than the two triangles, i.e. if $e > b + d$.

An export tax can be analysed in a similar manner. The tax discourages exports by reducing the price received by producers below the world price. With the lower after-tax price, producer surplus is reduced by area $a + b + c + d$ in Figure 11.5. Consumers gain because producers are willing to sell on the domestic market at a price equal to the world price minus the export tax; consumer surplus increases by area a . The benefits to consumers (a) and the revenue from the tax (c) are less than the cost to producers ($a + b + c + d$). The net loss consists of a cost of not exporting units for which production costs are below world price (triangle d) and a cost of selling units to domestic consumers who value those units less than their value on the world market (triangle b).

The demand and supply framework is very practical because many trade policy measures are microeconomic policies applying to a

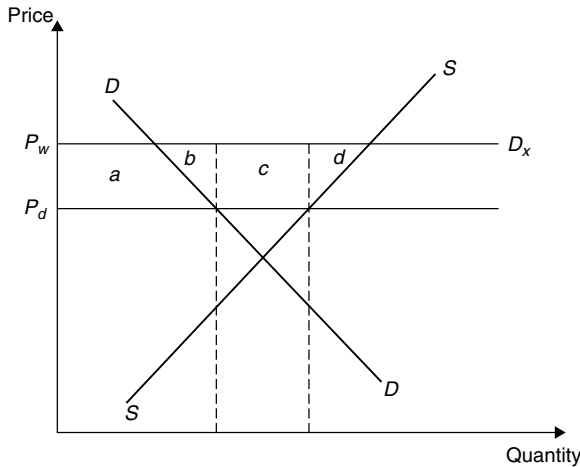


Figure 11.5. Partial equilibrium analysis of an export tax imposed by a small country.

Note: D_x is the export demand curve.

single good, and in most such cases the small country assumption is a good approximation of the policy-adopting country's market power. Moreover, the welfare changes are relatively easy to calculate from observed variables such as output and imports on the basis of demand and supply elasticities that are fairly robust, unlike the costs in general equilibrium analysis, which are defined in terms of production possibility frontiers and community indifference curves. However, it is necessary always to keep in mind the drawbacks of the partial equilibrium approach, which ignores any impact on factor markets and on the trade balance. Especially when many microeconomic trade measures are introduced at once, the effects on factor markets (and income distribution) and on export activities that were analysed in the previous section may be significant.

Although Figures 11.3 and 11.4 are typically used to estimate net welfare effects, they also highlight the point that all trade policies affect the distribution of income. The general equilibrium analysis emphasises the functional distribution of income, based on the source of people's incomes, and the partial equilibrium analysis emphasises the impact on consumers and on producers. The 'equal weights' assumption underlying the identification of the two triangles as the net welfare loss may or may not be appropriate, but it highlights the fact that interpersonal utility comparisons have to be made. Alternatively, it could be argued that if the areas accruing to gainers are larger than the areas representing costs, then the gainers could compensate the losers and net welfare gains would remain, but appropriate lump-sum transfers are not inevitable and the distributional consequences are politically important.

The Optimum Tariff Argument

When a large country imposes a small tariff, the rectangle e in Figure 11.4 is larger than the two Corden triangles. As the tariff is increased, the net welfare gains increase, until at some point the triangles begin to increase by more than the rectangle and the

net welfare gains from a higher tariff start to diminish. The tipping point, where national welfare is maximised, is *the optimum tariff*. A prohibitive tariff is welfare-reducing because it precludes realisation of any of the potential gains from trade. The optimum tariff must be somewhere between zero and the prohibitive tariff. The optimum tariff argument is a logically sound case for a tariff increasing national welfare, but there are two important caveats to its practical applicability.

Realising the benefits from an optimum tariff is confrontational because any terms of trade gain to one country is a loss to another country; terms of trade changes are zero-sum. In a world of several large trading nations, an attempt by one to impose an optimum tariff is likely to produce retaliation by other countries. For a retaliating country some of the welfare loss caused by the initial tariff will be reversed, but the mutual tariff hikes reduce the gains from trade leaving the world and at least one of the countries (and probably both) worse off than before the tariff increases (Johnson, 1954). Once begun a tariff war may be hard to stop, and may degenerate into a broader economic conflict. This was not uncommon in the 1800s and early 1900s. The most famous episode of retaliation followed the US tariff increase in 1930, when retaliatory tariff increases by many countries contributed to the decline in world trade which exacerbated the depression of the 1930s; the value of world imports in million gold dollars declined from 2,735 in January 1930 to 1,839 in January 1931, 1,206 in January 1932 and 992 in January 1933.

The second caveat is that in the 21st century few economies are large in the trade-theoretic sense, and even the largest trading nations would be hard-pressed to benefit significantly from an optimum tariff.⁵ There may be a stronger case for the existence of

⁵The size of the optimum tariff is inversely related to the elasticity of supply of imports. For a small country facing perfectly elastic supply of imports the optimum tariff is zero, but even for a large country the optimum tariff may be small if import supply is highly price elastic.

an optimum export tax for countries with market power in a natural resource; oil exporters succeeded in benefiting from their market power in the 1970s, but the success was short-lived as new sources of oil supply were brought on-line, oil importers reduced their demand and oil prices plummeted in the 1980s. US cotton in the years before 1860 is sometimes cited as a case where an optimum export tax existed; Doug Irwin (2003) estimated that the USA, which supplied 80% of the world market at the time, faced inelastic demand and the optimum export tax was in the order of 45–55%, but the net welfare gains would have been small (about 0.3% of US GDP or 1% of the output of the South). Attempts to benefit from market power have typically led to the development of substitutes (such as artificial rubber in the early 20th century), shifts in consumption (attempts to increase the price of bananas shifted demand to other fruits) or emergence of alternative sources of supply (e.g. to compete with Sri Lankan tea or Ghanaian cocoa). Such market-driven responses suggest that exercise of market power may be self-defeating, but the timeframe matters. OPEC countries benefiting from higher oil prices in the decade after 1973 may have been rudely shocked when oil prices started to tumble after 1981, but if they had used the cartel profits of the previous eight years wisely, then the exercise of market power left them better off than if they had continued to act as passive exporters.⁶

⁶Because oil has few close substitutes and discovery and exploitation of new oilfields takes time, the lag before demand and supply adjusted was fairly long, but the adjustments had a long-term impact as new fields in Alaska, the North Sea and elsewhere came online and people bought more fuel-efficient cars or firms shifted to other sources of energy. Oil prices collapsed between 1981 and 1986 and remained low for another dozen years, only picking up after a floor was reached in 1998. Diminished attention to fuel efficiency, low returns to finding new oilfields and rapidly increasing demand from large newly industrialising countries led to rapid increases in the price of oil in the early 2000s, but it was 2007 before they regained their 1981 level measured in constant US dollars.

The Distortions Approach to Trade Policy

The most common argument in favour of trade restrictions is to correct a domestic market failure, i.e. a situation where market prices do not reflect social costs or benefits. For example, a tariff can increase employment in an industry that is concentrated in a depressed region or it can reduce consumption of an undesirable good, or a tariff can provide revenue for the state to provide public goods. In each of these cases the tariff may improve national welfare.

The argument against using trade policy to achieve any of these goals is that it does too much. Using trade policy to increase employment in a protected industry does so at the cost of consumers of that industry's products, which is inefficient and unfair if the increased employment is a national or regional policy goal. In Figure 11.3 increasing output from OQ_1 to OQ_2 can be achieved by a tariff or by an equivalent subsidy (i.e. $P_d - P_w$ per unit of domestic output). The subsidy costs the government $P_d - P_w$ multiplied by OQ_2 (area $a + b$) and increases producer surplus by area a , for a net cost equal to triangle b . This is the minimum cost, at market prices, of promoting the extra employment. The subsidy is superior to a tariff because the tariff has a net cost of $b + d$.⁷

Similarly, reducing consumption from OQ_4 to OQ_3 can be achieved by a tariff or by a sales tax of equivalent size. The sales

⁷As in all of these welfare analysis the equal weights assumption is invoked. The choice between a policy that raises government revenue through a tariff and one that requires government spending through a subsidy should be symmetrical, unless raising public revenue is costly. For most governments today, the tariff revenues or subsidy expenditures involved in the policy decisions under consideration are trivial relative to the total government budget. Even in the late 1800s Canada used subsidies to support a major infant industry, steel. A more important asymmetry argument may concern perceptions, insofar as a protected industry may not want to appear as the direct beneficiary of public spending, even though it is the net welfare costs in Figure 11.1 that should matter most for public policy decisions.

tax reduces consumer surplus by $a + b + c + d$ and raises government revenue of $a + b + c$ for a net cost of triangle d . This is the inevitable cost of depriving consumers of the units Q_3Q_4 which they value more than their cost at the world price but less than the domestic price, P_d . Using trade policy incurs the additional cost, triangle b , of having some units (Q_1Q_2) supplied by domestic firms rather than being obtained at lower cost by trading and importing.

The general point is that, when a distortion exists, the best solution is the one that tackles the distortion as close to its origin as possible. If more output or jobs are desired, then the best policy is to subsidise production or employment. If less consumption of alcohol, narcotics, pornography, guns or whatever is desired, then a general tax on the good is preferable to a tax on imports, and probably even better is a public education scheme to encourage people to voluntarily reduce consumption. Only in the coincidental case where it is desired to reduce consumption and increase output by amounts consistent with the same trade barrier (e.g. in Figure 11.3 by Q_3Q_4 and Q_1Q_2) will a tariff be ideal, and even then it could be replicated by a sales tax and subsidy.

The argument about using trade taxes to raise revenue is similar insofar as they may be justified if there is no better way of raising government revenue, and government spending has higher social value at the margin than an equivalent amount of private spending. At low levels of national income and public spending this is likely to be true (Greenaway, 1984). Many poor countries rely on trade taxes because they are relatively cheap to collect, especially if the border is easily monitored. The same pattern applied historically in today's high income countries; in earlier times their governments relied on trade taxes for revenue, but as bureaucratic capabilities improved these were replaced by less distortionary sales and income taxes. Today, trade taxes account for a trivial share of most high- and middle-income countries' public revenues.

Trade Policy with Imperfect Competition

Imperfectly competitive markets provide other situations where trade policy may improve the situation, but are not necessarily the best policy. Compared to other distortions arguments, the added complication is the absence of any global regulator, which could enforce a competition policy in world markets. In the rare cases of natural monopolies international agreements have been reached, e.g. the Universal Postal Union, established in 1874, sets the rules for international mail (although the monopoly has been eroded in recent decades by courier services) and arguably the United Nations is the international provider of peacekeeping services, but countries have been reluctant to yield national sovereignty and have preferred to rely on national policy responses.

A simple and clear case for policy intervention arises when a good is supplied by a single foreign firm. In Figure 11.6, a profit-maximising monopolist with constant costs, OA , supplies quantity OQ_0 at which marginal revenue is equal to marginal cost; the foreign firm charges a price P_0 , and makes a profit equal to AP_0EH . By imposing an import tax of AB per unit, the government shifts the monopolist's average and marginal cost from OA to OB , and its profit-maximising output is now OQ_1 for which it charges a price P_1 ; the firm's profit is reduced to BP_1FC . The country is better off because tariff revenue $ABCJ$ is greater than the lost consumer surplus P_0P_1FE (Svedberg, 1979). The source of the national welfare gain is the transfer of part of the monopoly profit to the state budget via the tariff.

A sales tax is not the best way to deal with a monopoly because the problem is of undersupply and the tax reduces supply still further. A superior policy would be a profits tax set as close as possible to the no-intervention profit level, AP_0EH ; such a lump-sum tax would leave output and consumer surplus unchanged but transfer monopoly rent to the public purse. An even better policy would be to set a

In sum, if a country is being supplied by a foreign monopolist, then a trade tax would reduce the monopoly profits to the importing country's net benefit, although a profit tax or a price ceiling is likely to be superior. This is, however, a moot point as it is difficult to think of any global market with a single supplier and no prospective entrant to limit abuse of monopoly power.

In the more plausible situation of a global oligopoly, governments may be able to use *strategic trade policies* to shift excess profits (i.e. returns over and above what equally risky use of capital elsewhere in the economy could earn) from foreign to home firms by influencing the firms' strategic interaction.⁸ James Brander and Barbara Spencer developed a simple duopoly model to illustrate this possibility. Two firms located in different countries could compete in the world market, but the market can only support one profitable firm and the profitability of either firm thus depends upon the other firm's decision about whether to produce or not. With no government intervention, it could be chance which firm enters the industry and is profitable. First-mover advantage should be decisive, unless there is a coordination failure and both firms start production with mistaken beliefs about market size or their rival's action.⁹

The scope for government intervention can be illustrated by a numerical example. Suppose each firm could make excess profits of 100 units if they had a monopoly. If both firms produce, each will make 5 units loss. There is also the option of not producing and making zero profits. For simplicity, ignore the impact on consumers,

⁸The terminology may be confusing. Trade policy is sometimes advocated to support strategic industries, which may mean that they have perceived positive externalities (i.e. it is a distortions argument and a subsidy is superior) or they may be held back by being a latecomer where external economies of scale are strong as in Figure 9.2.

⁹This appears to be what happened in the market for three-engine large passenger jets during the 1970s when Lockheed and McDonnell Douglas entered the market with similar planes (L1011 and DC10). The L1011 failed to break even, and Lockheed ceased producing civilian aircraft in 1984. McDonnell Douglas remained in the commercial aircraft business, but was taken over by Boeing in 1997.

who are spread across the world so that changes in their well-being are a minor consideration to the two countries' governments. If one government offers its home firm a subsidy of more than five units, then that firm will be profitable whether or not the other firm produces. With the knowledge that its competitor will definitely produce, the unsupported firm will not produce. The country with the subsidised firm is better off because, although there is a transfer from the government to the firm, the subsidy is less than the excess profits that now accrue to the firm.

The significance of the subsidy in the Brander–Spencer example is that it is a credible commitment, which changes the strategic interaction between the two firms and determines the outcome. Although this is a simple example, it can be generalised to any oligopoly situation where the strategic interaction between firms can be shifted to produce a different outcome. However, implementation is likely to require more information about the firms than any government possesses and mistakes are probable. Firms have an incentive to overstate the required subsidy, and release information about costs or strategic interaction which will favour their interests rather than the national interest. The firms are unlikely to be identical; in the above example, if the firm which receives the subsidy happens to be the less efficient firm, then the outcome may be inferior for the subsidising country and will be globally suboptimal.

The strategic trade policy argument has been criticised as a theoretical curiosity, which has given governments a justification for assisting undeserving domestic producers. This is an empirical argument, and the evidence is difficult to interpret (Pomfret, 1992). The Brander–Spencer example is often illustrated by competition between Boeing and Airbus in large civilian jet aircraft, which is the most obvious example of a global duopoly. Even the Airbus–Boeing case is unclear because, although the subsidies to Airbus were substantial, there is disagreement about the extent to which Boeing benefited from US government support, mainly in the form of military

orders which helped to cover the fixed cost of aircraft design and launch, and the outcome was further complicated because Boeing was disadvantaged by US dollar appreciation in the first half of the 1980s when the B757 faced the A310. In fact, both Boeing and Airbus remained in production, possibly at a cost to both US and EU taxpayers which outweighed the benefits from shifting profits. The beneficiaries were airlines in third countries, who paid a lower price for their aircraft than they would have done had there been a single global supplier or an unsubsidised duopoly, and hence airline passengers.

Concorde provides a cautionary tale about the perils of strategic trade policy. The scale of British and French government assistance ensured that the supersonic plane entered the market and led to Boeing's abandonment of a competing supersonic aircraft when US government assistance was cut back. Concorde enjoyed a monopoly in the supersonic large commercial jet market, but it was a commercial disaster because insufficient passengers would pay fares high enough to cover even the marginal costs of operation. The outcome was a net economic cost to the subsidising countries and to the then state-owned airlines, British Airways and Air France, who were obliged to operate the planes at a loss.

Another imperfect competition situation where there may be a justification for policy intervention arises when a firm can segment markets and charge different prices. Discriminatory pricing in the domestic market is often perceived as unfair or anti-competitive and is outlawed by many national competition policies, although some exceptions are tolerated or considered desirable (e.g. discounts for students or pensioners). Figure 11.7 illustrates price discrimination in an international trade setting. A firm which operates as a monopolist in the domestic market, but faces perfect competition in the world market, maximises profits by equating marginal cost and marginal revenue, in this case equal to the world price P_w , and by allocating sales between home and export markets so that marginal revenue

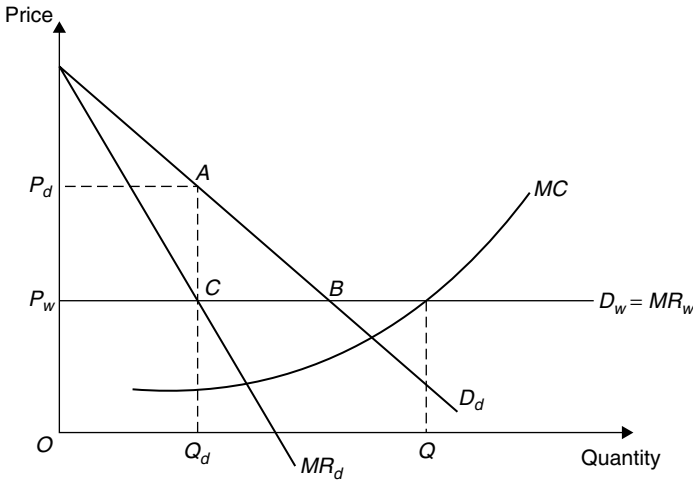


Figure 11.7. Price discrimination by an exporting firm with a domestic monopoly.

is equalised in the two markets. The firm’s output OQ is divided between Q_dQ units sold in the world market at the world price and OQ_d units sold in the home market at the higher price P_d . The **discriminatory pricing** allows the firm to earn monopoly profits in the home market, as long as domestic consumers are unable to purchase at P_w whether due to trade barriers or to devices like warranties and after-sales services that are only available in the country of purchase. There is a welfare loss to the home country, because the lost consumer surplus from not being able to buy at the world price ($P_d.ABP_w$) is greater than the monopoly profit ($P_d.ACP_w$).¹⁰

¹⁰The situation where an exporter with monopoly power charges foreigners a higher price than it charges in its domestic market is more likely to be harmful to the importing country. The main example of such behaviour is in energy markets, e.g. many oil-producing countries have domestic prices below the world market price. The price for natural gas in Russia is about 15–20% of the price at which the gas is sold to Germany (and many domestic consumers simply do not pay — in 2005 the Russian national gas company, Gazprom, reported two billion US dollars worth of unpaid bills). However, oil and gas importers seem to be more concerned about security of supply than about the discriminatory pricing.

When international trade is involved, the most plausible situation is that portrayed in Figure 11.7, where home country consumers suffer and consumers in countries where the price is P_w should be happy to be paying less. Nevertheless, one of the most pervasive trade policy instruments today is *antidumping duties* imposed by the importing country against exporters who are charging less in their export markets than in their home markets. Preventing such discriminatory behaviour may be justified if the discriminatory behaviour is predatory, intended to drive domestic firms out of business by undercutting them on price and then once the foreign firm is the sole provider it will raise prices to earn monopoly profits at the expense of consumers in the home country (as in Figure 11.6). This is, however, an uncommon situation because it requires the predator not only to absorb short-term losses during the price war but also for barriers to entry or re-entry to be sufficiently high that the monopoly will not be contested when prices are subsequently increased.¹¹ In practice, the main attractions of antidumping duties seem to be for the protected firms rather than being in the public interest and this argument will be addressed in the next two chapters.

Conclusions

Trade policies can achieve desirable public objectives, but among economists there is a strong consensus that free trade is the best policy. The optimal tariff argument is valid if no retaliation occurs, but the risk is substantial that if retaliation does occur then it

¹¹Strategic interaction between firms may lead to discriminatory pricing with ambiguous welfare consequences; in a symmetrical global duopoly, reciprocal dumping may be privately profitable, in which case the cross-hauling is wasteful but the increased competition in each country's home market is welfare-enhancing (Brander and Krugman, 1983). Falvey and Nelson (2006) survey the literature and conclude that "dumping can be associated with just about any effect on welfare" and that "only a very small share of antidumping duties could be associated with predation".

could degenerate into a destructive trade war. All economies have cases where social costs and benefits do not match private costs and benefits and in many such situations imposing a trade barrier might be better than doing nothing, but trade policies introduce new distortions and a policy which tackles the divergence between private and social costs as close to the source of the original distortion as possible would be superior. Trade taxes can raise public revenue, but other taxes are less distortionary. With imperfect competition, it may be possible to design policies which shift excess profits to domestic producers and thus increase national welfare, but this assumes omniscience on the part of policymakers and there are incentives for producers to misstate costs, elasticities and strategic interaction in order to increase their profits even when it may not be in the public interest.

A division can be made between arguments for restrictive trade policies based on domestic distortions, where a superior policy would tackle the distortion closer to its source, and arguments based on international market imperfections, where policies may be national-welfare-improving in theory but are likely to be confrontational or misdirected in practice. A presumption in favour of free trade policies recognises the pervasiveness of gains from trade, and is not an endorsement of laissez faire economic policies. The distortions approach explicitly recognises the existence of market failures in need of correction, but indicates that trade policy is not the appropriate instrument.

A second lesson from the theory of trade policy which has not been stressed so far, but is clear from the analysis, is that trade policies always have distributional consequences. The analytics are straightforward because they represent reversal of the distributional effects of free trade as captured in the Stolper–Samuelson theorem or the specific factors model. A trade barrier benefits the factor used relatively intensively in the import-competing activity and

hurts factors used relatively intensively in export activities.¹² Factors specific to import-competing sectors benefit from trade restrictions and factors specific to export activities lose. The partial equilibrium model highlights the conflicting interests of producers and consumers, and also that the welfare transfers (notably area *a* in Figure 11.3) may be much larger than the triangles which capture net gains. The presumption that with compensation of losers there is a net national gain may offer little comfort to potential losers. In the face of distrust of the political system to carry through such compensation, whether a trade barrier is introduced or not may depend upon the relative political influence of those who gain from trade and of those whose wellbeing is threatened by trade.

¹²More precisely, factors used intensively in the activity whose relative price increases benefit. In a large country the terms of trade effect could conceivably be sufficiently strong that a tariff lowers the domestic relative price of the import and the factor used intensively in the export sector is the gainer (Metzler, 1949). This implies that demand for the country's export is highly inelastic, and the Metzler paradox has few if any proven examples.