

Chapter 8 – Krugman and Obstfeld

1. The import demand equation, MD , is found by subtracting the home supply equation from the home demand equation. This results in $MD = 80 - 40 \times P$. Without trade, domestic prices and quantities adjust such that import demand is zero. Thus, the price in the absence of trade is 2.
2. (a) Foreign's export supply curve, XS , is $XS = -40 + 40 \times P$. In the absence of trade, the price is 1.
 (b) When trade occurs export supply is equal to import demand, $XS = MD$. Thus, using the equations from problems 1 and 2a, $P = 1.50$, and the volume of trade is 20.
3. (a) The new MD curve is $80 - 40 \times (P + t)$ where t is the specific tariff rate, equal to 0.5. (Note: in solving these problems you should be careful about whether a specific tariff or ad valorem tariff is imposed. With an ad valorem tariff, the MD equation would be expressed as $MD = 80 - 40 \times (1 + t)P$). The equation for the export supply curve by the foreign country is unchanged. Solving, we find that the world price is \$1.25, and thus the internal price at home is \$1.75. The volume of trade has been reduced to 10, and the total demand for wheat at home has fallen to 65 (from the free trade level of 70). The total demand for wheat in Foreign has gone up from 50 to 55.
 (b) and (c) The welfare of the home country is best studied using the combined numerical and graphical solutions presented below in Figure 8.1.

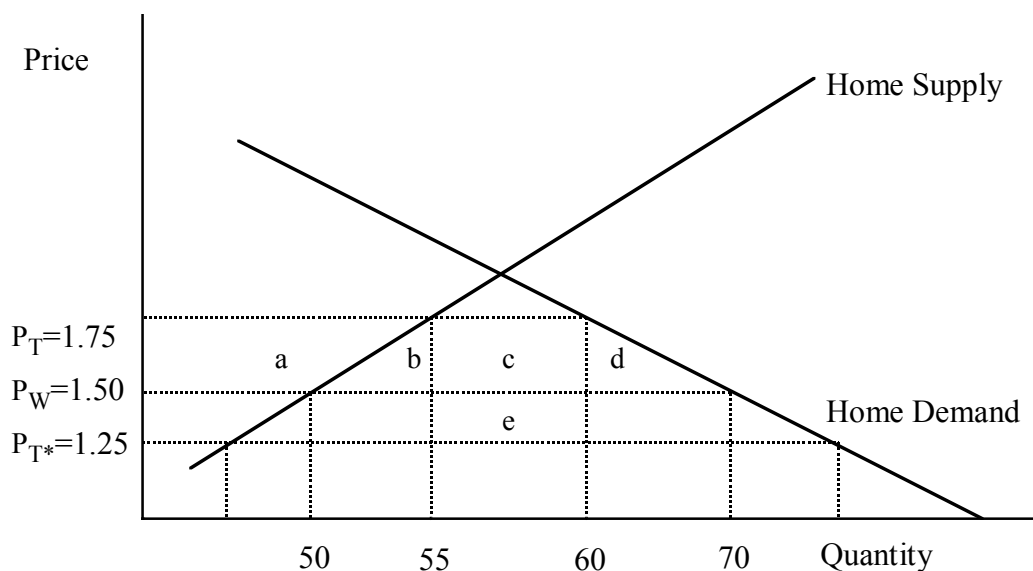


Figure 8.1

where the areas in the figure are:

$$a: 55(1.75 - 1.50) - 0.5(55 - 50)(1.75 - 1.50) = 13.125$$

$$b: 0.5(55 - 50)(1.75 - 1.50) = 0.625$$

$$c: (65 - 55)(1.75 - 1.50) = 2.50$$

$$d: 0.5(70 - 65)(1.75 - 1.50) = 0.625$$

$$e: (65 - 55)(1.50 - 1.25) = 2.50$$

Consumer surplus change: $-(a + b + c + d) = -16.875$. Producer surplus change: $a = 13.125$.
Government revenue change: $c + e = 5$. Efficiency losses $b + d$ are exceeded by terms of trade gain e . [Note: in the calculations for the a , b , and d areas a figure of 0.5 shows up. This is because we are measuring the area of a triangle, which is one-half of the area of the rectangle defined by the product of the horizontal and vertical sides.]

4. Using the same solution methodology as in problem 3, when the home country is very small relative to the foreign country, its effects on the terms of trade are expected to be much less. The small country is much more likely to be hurt by its imposition of a tariff. Indeed, this intuition is shown in this problem. The free trade equilibrium is now at the price \$1.09 and the trade volume is now \$36.40.

With the imposition of a tariff of 0.5 by Home, the new world price is \$1.045, the internal home price is \$1.545, home demand is 69.10 units, home supply is 50.90 and the volume of trade is 18.20. When Home is relatively small, the effect of a tariff on world price is smaller than when Home is relatively large. When Foreign and Home were closer in size, a tariff of 0.5 by home lowered world price by 25 percent, whereas in this case the same tariff lowers world price by about 5 percent. The internal Home price is now closer to the free trade price plus t than when Home was relatively large. In this case, the government revenues from the tariff equal 9.10, the consumer surplus loss is 33.51, and the producer surplus gain is 21.089. The distortionary losses associated with the tariff (areas $b + d$) sum to 4.14 and the terms of trade gain (e) is 0.819. Clearly, in this small country example the distortionary losses from the tariff swamp the terms of trade gains. The general lesson is the smaller the economy, the larger the losses from a tariff since the terms of trade gains are smaller.

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2. (a) This is potentially a valid argument for a tariff, since it is based on an assumed ability of the United States to affect world prices—that is, it is a version of the optimal tariff argument. If the United States is concerned about higher world prices in the future, it could use policies which encourage the accumulation of oil inventories and minimize the potential for future adverse shocks.
- (b) Sharply falling prices benefit U.S. consumers, and since these are off-season grapes and do not compete with the supplies from U.S. producers, the domestic producers are not hurt. There is no reason to keep a luxury good expensive.
- (c) The higher income of farmers due to export subsidies and the potentially higher income to those who sell goods and services to the farmers comes at the expense of consumers and taxpayers. Unless there is some domestic market failure, an export subsidy always produces more costs than benefits. Indeed, if the goal of policy is to stimulate the demand for the associated goods and services, policies should be targeted directly at these goals.
- (d) There may be external economies associated with the domestic production of semiconductors. This is a potentially a valid argument. But the gains to producers of protecting the semiconductor industry must as always be weighed against the higher costs to consumers and other industries which pervasively use the chips. A well-targeted policy instrument would be a production subsidy. This has the advantage of directly dealing with the externalities associated with domestic chip production.

- (e) Thousands of homebuyers as consumers (as well as workers who build the homes for which the timber was bought) have benefited from the cheaper imported timber. If the goal of policy is to soften the blow to timber workers, a more efficient policy would be direct payments to timber workers in order to aid their relocation.
3. Without tariffs, the country produces 100 units and consumes 300 units, thus importing 200 units.
- (a) A tariff of 5 per unit leads to production of 125 units and consumption of 250 units. The increase in welfare is the increase due to higher production of 25×10 minus the losses to consumer and producer surplus of $(25 \times 5)/2$ and $(50 \times 5)/2$, respectively, leading to a net gain of 62.5.
- (b) A production subsidy of 5 leads to a new supply curve of $S = 50 + 5 \times (P + 5)$. Consumption stays at 300, production rises to 125, and the increase in welfare equals the benefits from greater production minus the production distortion costs, $25 \times 10 - (25 \times 5)/2 = 187.5$.
- (c) The production subsidy is a better targeted policy than the import tariff since it directly affects the decisions which reflect a divergence between social and private costs while leaving other decisions unaffected. The tariff has a double-edged function as both a production subsidy and a consumption tax.
- (d) The best policy is to have producers fully internalize the externality by providing a subsidy of 10 per unit. The new supply curve will then be $S = 50 + 5 \times (P + 10)$, production will be 150 units, and the welfare gain from this policy will be $50 \times 10 - (10 \times 50)/2 = 250$.
5. (a) This would lead to trade diversion because the lower cost Japanese cars with an import value of €15,000 (but real costs of €10,000) would be replaced by Polish cars with a real cost of production equal to €14,000.
- (b) This would lead to trade creation because German cars that cost €20,000 to produce would be replaced by Polish cars that cost only €14,000.
- (c) This would lead to trade diversion because the lower cost Japanese cars with an import value of €16,000 (but real costs of €8,000) would be replaced by Polish cars with a real cost of production equal to €14,000.
7. The optimal tariff argument rests on the idea that in a large country tariff (or quota) protection in a particular market can lower the world price of that good. Therefore it is possible that with a (small) tariff, the tariff revenue accruing to the importing country may more than offset the smaller welfare losses to consumers, smaller because prices have fallen somewhat due to the tariff itself.
8. The game is no longer a Prisoners Dilemma. As the chapter discusses, protectionist measures are welfare reducing in their own right. Each country would have an incentive to engage in free trade no matter what the strategy of the other country. Only in a more complex dynamic game in which a trade partner will only open its markets if the home country threatens sanctions (and the threats are only credible if occasionally carried out) would we find any welfare enhancing reason to use a tariff.

9. Perhaps, but probably not likely. If and only if the country is large, and a major importer of the particular good question, this may cause world prices to fall for the good, thus reducing employment in that particular export industry overseas. However, this rests on the assumption that the importing country is large and has a large effect on world prices. This kind of policy is a rather blunt policy instrument against the negative spillover effects from dirty overseas manufacturing plants. Probably a better policy is to address the specific issues through more direct policy instruments, through fines implemented against pollution or abuses of workers. In addition, even if the policy succeeded in reducing production of the good overseas, if worker welfare is the concern, one must consider the working conditions of the alternate labor options in that country; they may be less appealing than the export industry.

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3.
 - (a) The initial high costs of production would justify infant industry protection if the costs to the society during the period of protection were less than the future stream of benefits from a mature, low cost industry.
 - (b) An individual firm does not have an incentive to bear development costs itself for an entire industry when these benefits will accrue to other firms. There is a stronger case for infant industry protection in this instance because of the existence of market failure in the form of the appropriability of technology.
4. There are larger markets in larger countries like Brazil and industries which benefit from import substituting policies could realize economy of scale advantages there which would not be available to industries producing solely for the market of Ghana.
5. In some countries the infant industry argument simply did not appear to work well. Such protection will not create a competitive manufacturing sector if there are basic reasons why a country does not have a competitive advantage in a particular area. This was particularly the case in manufacturing where many low-income countries lack skilled labor, entrepreneurs, and the level of managerial acumen necessary to be competitive in world markets. The argument is that trade policy alone cannot rectify these problems. Often manufacturing was also created on such a small-scale, that it made the industry's noncompetitive, where economies of scale are critical to being a low-cost producer. Moreover protectionist policies in less-developed countries have had a negative impact on incentives, which has led to "rent-seeking" or corruption.

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1. The main disadvantage is that it can lead to both "rent seeking" and beggar-thy-neighbor policies, which can increase one country's welfare at the other countries expense. Such policies can lead to a trade war in which every country is worse off, even though one country could become better off in the absence of retaliation. This is the danger in enacting strategic trade policy: it often provokes retaliation, which in the long run, can make everyone worse off.

3. A valid reason for supporting high-technology industries would be that they generate technologies that benefit the whole economy. The value to the whole economy of this aspect of the high-technology firms' existence exceeds the benefits to the firms themselves, and there will be too little expansion of these firms from a social point of view. Other stated benefits are not valid reasons for industrial policy since the market provides incentives for the realization of these benefits. The protection from foreign competition is also a spurious argument since, as has been shown in previous chapters, the economy as a whole benefits from cheap foreign high-technology goods. The exception being if the industry provides monopoly rents and the foreign government is trying to capture these rents for its home economy.
5. A subsidy is effective when the firm in the other country does not produce when the domestic firm enters the market. As the text tables show, a subsidy may present a credible threat of entry and deters production by the other firm: a subsidy encourages Airbus to produce and Boeing not to produce. However, Boeing may still produce even if Airbus receives a subsidy. Airbus' return is less than the subsidy if Boeing enters the market.
6. Key assumptions in the model are that economies of scale are large for each firm, while the market is of a limited size. Because of this, there is only room for one firm to profitably produce the new jet aircraft. In the absence of economies of scale, both firms can share the market and divide the profits. If the market were larger, both firms could enter the market profitably even with economies of scale.
8. Advantages to such policies are obviously that some workers are able to enjoy higher standards in the workplace. The disadvantages with such policies are that they may serve as a deterrent to employment creation in developing countries as costs increase to producers of locating manufacturing in these countries. Policymakers have to weigh a trade-off between insisting on decency in working conditions, with imposing standards of the already industrialized countries on the developing world, as these policies may cost large numbers of jobs in manufacturing in developing countries.
11. The main critique against the WTO with respect to environmental issues is that the WTO refuses to impose environmental standards on countries, but rather does not allow countries to discriminate against imported goods that are held to a different standard than domestically produced goods. In some respects those opposed to globalization would rather see the WTO have more power than it actually claims for itself, power to impose environmental laws as well as resolve trade disputes. However, the WTO does in one sense intervene in environmental issues of member countries by forcing member countries to apply the same standards to imported goods as to domestically produced goods.