

## THE WELFARE COSTS OF TARIFFS, MONOPOLIES, AND THEFT

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In recent years a considerable number of studies have been published that purport to measure the welfare costs of monopolies and tariffs.<sup>1</sup> The results have uniformly shown very small costs for practices that economists normally deplore. This led Mundell to comment in 1962 that "Unless there is a thorough theoretical re-examination of the validity of the tools upon which these studies are founded . . . someone will inevitably draw the conclusion that economics has ceased to be important."<sup>2</sup> Judging from conversations with graduate students, a number of younger economists are in fact drawing the conclusion that tariffs and monopolies are not of much importance. This view is now beginning to appear in the literature. On the basis of these measurements Professor Harvey Leibenstein has argued "Microeconomic theory focuses on allocative efficiency to the exclusion of other types of efficiencies that, in fact, are much more significant in many instances."<sup>3</sup>

It is my purpose to take the other route suggested by Mundell and demonstrate that the "tools on which these studies are founded" produce an underestimation of the welfare costs of tariffs and monopolies. The classical economists were not concerning themselves with trifles when they argued against tariffs, and the Department of Justice is not dealing with a miniscule problem in its attacks on monopoly.

### STATICS

The present method for measuring these costs was pioneered by Professor Harberger.<sup>4</sup> Let us, therefore, begin with a very simple use of his diagram to analyze a tariff. Figure 1 shows a commodity that can be produced

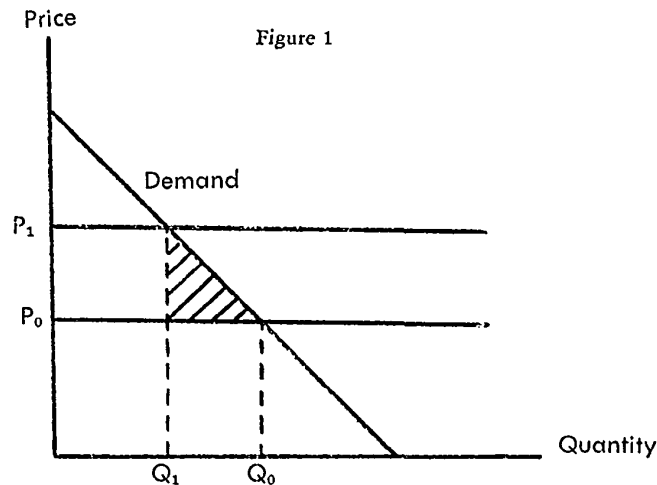
<sup>1</sup>These studies are conveniently listed with a useful table of the welfare losses computed in each in Harvey Leibenstein, "Allocative Efficiency vs. 'X-Efficiency,'" *Am. Econ. Rev.*, June 1966, 56, 392-415.

<sup>2</sup>R. A. Mundell, Review of L. H. Janssen, *Free Trade, Protection and Customs Union*, *Am. Econ. Rev.*, June 1962, 52, 622.

<sup>3</sup>*Op. cit.*, p. 392. In this article Leibenstein consistently uses the phrase "allocative efficiency" to refer solely to the absence of tariffs and monopolies.

<sup>4</sup>A. C. Harberger, "Using the Resources at Hand More Effectively," *Am. Econ. Rev.*, May 1959, 49, 134-46. It should be noted that Harberger suggested the method for the measurement of the welfare costs of monopoly, but its extension to cover tariffs was the work of other scholars. The more careful scholars who have measured the welfare costs of tariffs have not all used this very simple application of Harberger's method, but a method such as illustrated in Figure 2. I have chosen to begin with this method of measurement partly because it simplifies the exposition and partly because this procedure is the "conventional wisdom" on the matter. (*Cf.* Leibenstein, *op. cit.*)

domestically at the constant cost of  $P_1$  and imported at  $P_0$ . With the given demand and no tariff  $Q_0$  units will be purchased at a price of  $P_0$ . If a prohibitive tariff is imposed  $Q_1$  units will be bought at a price of  $P_1$ . The increase in price, it is argued, is merely a transfer from some members of the community to others, and the only welfare loss is consequently the shaded triangle. The studies purporting to measure the welfare costs of tariffs have simply computed the value of this triangle. From the geometry it is fairly obvious that the amount would normally be small.



There are a considerable number of costs that are ignored by this procedure. As a starter, collection of a tariff involves expenditure on customs inspectors, etc., who do the actual collection and coast guards who prevent smuggling. Further, customs brokers are normally hired by the shipper to expedite the movement of their goods through customs.<sup>5</sup> Normally we pay little attention to collection costs because they are small, but in this case they may well be larger than the welfare triangle which is also small. Thus by simply adding in collection costs we significantly increase the "social cost" of the tariff.

For a more significant criticism of this method of measuring the welfare cost let us apply the procedure to a standard excise tax instead of a tariff. Assume that Figure 1 shows a constant supply cost and a declining demand for some commodity in some country.  $Q_0$  units are bought at a price,  $P_0$ . Now suppose that a tax is imposed, raising the price to  $P_1$ , and reducing sales to  $Q_1$ . The welfare cost of this tax is measured by the shaded triangle. But suppose further, that the revenues raised by this tax are completely wasted, building tunnels, for example, which go nowhere. Now the social

<sup>5</sup>Strictly speaking, the customs brokerage should be added on to the tax thus producing a larger welfare triangle.

cost of the total package of tax and wasteful expenditure is the welfare triangle plus the total tax revenue, or the trapezoid bounded by the lines showing cost, the cost-plus-tax, and the demand function. The people buying the product pay more than the cost, but no one benefits from the expenditure.<sup>6</sup> The funds are not transferred because no one benefits from the existence of the tax. The whole economy is poorer not just by the triangle, but by the whole amount of wasted resources.

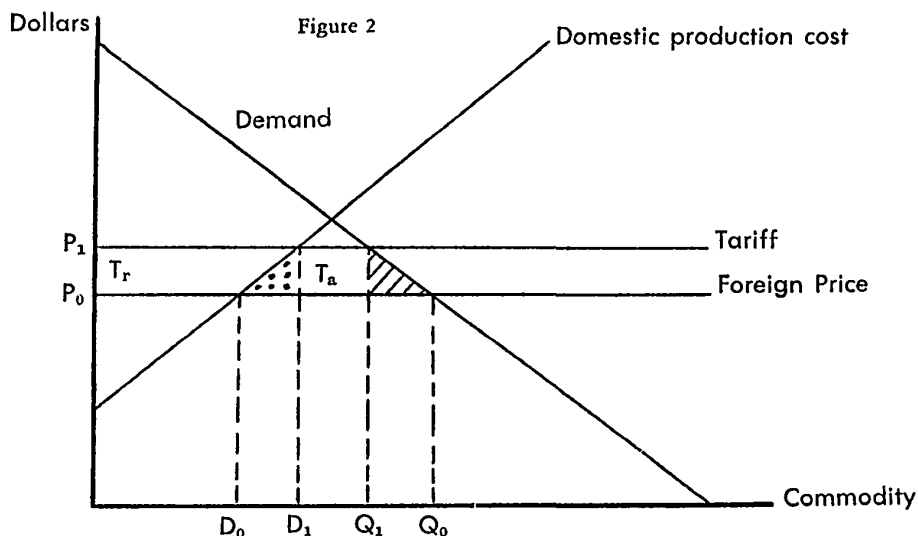
The tariff involves a similar waste of resources and consequently its social cost cannot be measured simply by the welfare triangle. Figure 1 can also be used to show the foreign and domestic costs of some type of good and the national demand for it. Since domestic cost is higher than the (delivered) cost of the foreign good, none would be produced domestically in the absence of a tariff.  $Q_0$  units would be imported and consumed at a price shown by  $P_0$ . The country now puts on a prohibitive tariff and the higher cost domestic production takes over the complete market.  $Q_1$  units are sold at  $P_1$ . The welfare triangle has been used to measure the welfare cost of this operation.<sup>7</sup> The argument for this procedure is, essentially, that the higher prices paid by the consumers represent a transfer payment, not a real loss to the economy. But who receives this transfer? The owners of the resources now engaged in inefficiently producing the commodity receive no more than they would have received had the tariff never been introduced and they had been employed in other industries.<sup>8</sup> These resources, however, are being inefficiently utilized, and the rectangle between  $P_1$  and  $P_0$  and bounded by the vertical axis and  $Q_1$  measures the social cost of this waste. Thus the total welfare cost of the tariff is the triangle plus the much larger rectangle to its left.

The situation is identical to that which would arise if the government required an established domestic industry to abandon an efficient method of production and adopt an inefficient. This could be graphed on the same diagram, and it would be generally agreed that the welfare loss would not be just the welfare triangle, but would also include the inefficient use of resources required by the governmental regulation shown in the rectangle to the left of the triangle. Since a tariff shifting production from the production of export goods to import-replacement goods where the country has a comparative disadvantage is, in fact, a governmental requirement that the goods be obtained in an inefficient manner, the cases are identical. The cost of a protective tariff is the triangle plus the difference between domestic cost of production and the price at which the goods could be purchased abroad.

<sup>6</sup>The government action might slightly increase the rents on the resources used to build the tunnel, and thus the owners of specialized resources might benefit slightly, but clearly this is a very trivial effect.

<sup>7</sup>Tibor Scitovsky, *Economic Theory and Western European Integration*, Stanford 1958.

<sup>8</sup>There might be sizable but temporary rents to the firstcomers when the industry was first established.



Let us, however, consider the situation in which there is some domestic production before the imposition of a tariff. Figure 2 shows a commodity part of the consumption of which is imported and part produced domestically. The supply elasticity of the commodity from foreign sources is assumed infinite, but domestic production is carried on in conditions of increasing costs. Without the tariff, the price is  $P_0$ , domestic producers turn out  $D_0$  units and  $Q_0 - D_0$  units are imported to make up the total consumption of  $Q_0$ . Suppose now, that Mr. Gladstone is prime minister and imposes a tariff on imports and an excise tax of the same amount on domestic production. With the new price,  $P_1$ , consumers will want only  $Q_1$  units, and the shaded triangle measures the excess burden. Domestic production will remain  $D_0$ , but imports will shrink from  $Q_0 - D_0$  to  $Q_1 - D_0$ . The government will receive a tax revenue equivalent to the entire rectangle bounded by the two price lines, the vertical axis and  $Q_1$ .

Let us now change our example by assuming that the domestic excise tax is repealed, so that we have only a protective tariff. Domestic consumption and price would remain the same, but domestic production would expand to  $D_1$  and imports would shrink accordingly. There would be an inefficient use of resources in producing things which would be better imported represented by the dotted triangle. Governmental revenues would shrink to the rectangle marked  $T_a$  and the owners of the resources in the domestic industry would receive an amount of resources equal to the area of the trapezoid  $T_r$ .<sup>9</sup> Clearly the social cost of the tariff is not just the shaded triangle, but also the dotted triangle which shows a net waste of resources in inefficient production.

<sup>9</sup>See J. Wemelsfelder, "The Short Term Effect of the Lowering of Import Duties in Germany," *Econ. Jour.*, March 1960, 70, 94-104.

DYNAMICS: THE COST OF TRANSFERS

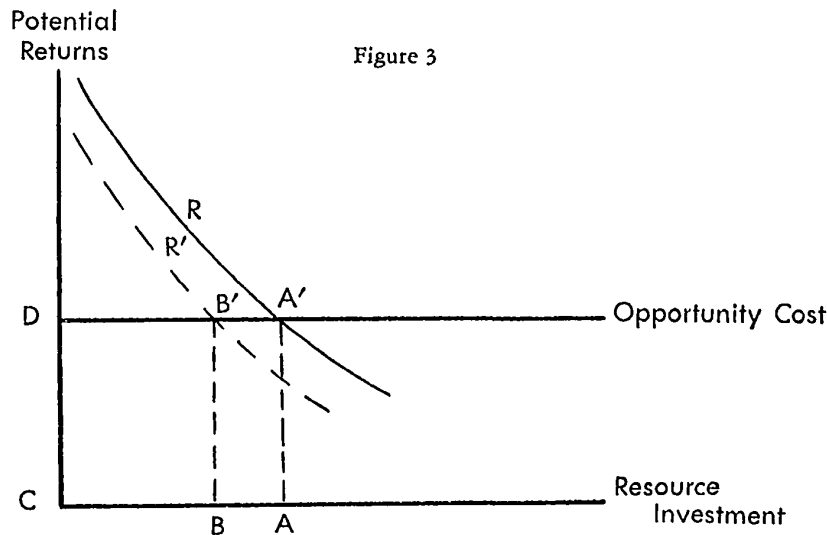
The trapezoid  $T_r$ , however, would appear to be a pure transfer, and hence not to be included in the computation of the cost of the tariff. Strictly speaking this is so, but looking at the matter dynamically, there is another social cost involved, and its magnitude is a function of the size of this transfer trapezoid. Generally governments do not impose protective tariffs on their own. They have to be lobbied or pressured into doing so by the expenditure of resources in political activity. One would anticipate that the domestic producers would invest resources in lobbying for the tariff until the marginal return on the last dollar so spent was equal to its likely return producing the transfer. There might also be other interests trying to prevent the transfer and putting resources into influencing the government in the other direction. These expenditures, which may simply offset each other to some extent, are purely wasteful from the standpoint of society as a whole; they are spent not in increasing wealth, but in attempts to transfer or resist transfer of wealth. I can suggest no way of measuring these expenditures, but the potential returns are large, and it would be quite surprising if the investment was not also sizable.

Monopolies involve costs of a somewhat similar nature, and it follows that I will not be able to produce a method to measure their social costs. I will, however, be able to demonstrate that the welfare triangle method greatly underestimates these costs. The argument is customarily explained with the aid of a figure like Figure 1. The monopolist charges the monopoly price  $P_1$  instead of the cost  $P_0$  for the commodity, and consumption is reduced from  $Q_0$  to  $Q_1$ . The welfare triangle is a clear loss to the community but the rectangle to its left is merely a transfer from the consumers to the owners of the monopoly. We may object to the monopolist getting rich at the expense of the rest of us, but this is not a reduction in the national product.

In order to demonstrate that this line of reasoning ignores important costs, I should like to take a detour through the economics of theft.<sup>19</sup> Theft, of course, is a pure transfer, and therefore might be assumed to have no welfare effects at all. Like a lump sum tax, it produces no welfare triangle at all, and hence would show a zero social cost if measured by the Harberger method. This would, of course, be incorrect. In spite of the fact that it involves only transfers, the existence of theft has very substantial welfare costs. Our laws against theft do not deal with a trivial and/or unimportant problem any more than our laws against monopoly.

<sup>19</sup>The economics of illegal activities is an underdeveloped area, but Harold Demsetz discusses the subject briefly in "The Exchange and Enforcement of Property Rights," *Jour. of Law and Econ.*, October 1964, 7, 11-26. J. Randolph Norworthy's Doctoral Dissertation, *A Theory of Tax Evasion and Collection*, Virginia, 1966, is a more comprehensive examination of one type of illegal activity. Two unpublished items have been circulated among a few scholars. Gary Becker's "A Theory of Government Punishments and Rewards," and my own *Law and Morals*, the unfinished manuscript of a book which I began four years ago and which has languished in draft form for almost all of those four years.

Figure 3 shows the situation confronting the potential thief. On the horizontal axis is shown the quantity of effort and capital (burglars' tools, etc.) he might invest in a career of crime. On the vertical axis are shown potential returns. The "opportunity cost" line shows the returns he could get for the same investment of work and material in other occupations. It is assumed to be constant. Let us begin by assuming that taking another's property is not illegal. Under these circumstances the returns on various amounts of investment in the activity are shown by line *R*. The potential thieves would invest the quantity of resources shown at *A* in theft, the cost to him would be the rectangle *AA'DC*, and his net return on the investment would be the triangular area above *A'D*.



The situation of a person who wished to guard his own assets, who might, of course, be the thief hoping to hold onto his loot, may also be shown on Figure 3. On the horizontal axis are shown the resources invested in loss minimizing activities.<sup>11</sup> The cost of each unit of resources put to this use is shown by the horizontal opportunity line, and the savings are on the vertical axis. The line *R* now shows the returns in the form of savings for each unit of "theft prevention." The total amount of resources invested would again be *A*.

The two situations are interrelated by more than the fact that they can be shown on the same diagram. The height of the *R* curve for the thief would depend upon the amount of resources invested by other members of the community in locks and other protections. Similarly, the individual in considering how many locks to buy would find that his *R* curve

<sup>11</sup>The word "activities" may be misleading. One way of minimizing loss by theft is to have little or nothing to steal. In a world in which theft was legal we could expect this fact to lead to a reduction in productive activities and a great expansion in leisure.

depended upon the resources being invested in attempts at theft by the rest of the population. When a potential thief invests money, say, in an improved lock pick, the  $R$  curve for people trying to protect their property moves downward. Similarly, hiring an armed guard to watch your valuables moves the  $R$  curve for potential thieves down. Putting a new lock on my door reduces the chance that I will be robbed, but whether the gain will be worth the cost will depend upon the effort the thieves are willing to put into getting in. Over time the interaction between the investment in locks, the payoff on lock picks and the investment in nitroglycerine and safes would come to equilibrium.

This equilibrium, however, would be extremely costly to the society in spite of the fact that the activity of theft only involves transfers. The cost to society would be the investments of capital and labor in the activity of theft and in protection against theft. If we consider Figure 3 as representing the entire society instead of individuals, then the social costs would be the area covered by the rectangle  $AA'DC$ . Transfers themselves cost society nothing, but for the people engaging in them they are just like any other activity, and this means that large resources may be invested in attempting to make or prevent transfers. These largely offsetting commitments of resources are totally wasted from the standpoint of society as a whole.

This lesson has been learned by almost all societies that have adopted a collective method of reducing this sort of income transfer. This collective procedure, laws against theft and police and courts to enforce them, can also be shown on Figure 3. On the horizontal axis we now have resources invested by police and courts, with their opportunity cost shown as a horizontal line. The "protection" given by each unit of resources invested in these activities is shown by the  $R$  line. The society would purchase  $A$  amount of protective services, and the total cost would be the usual rectangle. The effect of this would be to reduce the expected returns on theft and the savings to be made by private investment in locks, etc. The new returns are shown by  $R'$  on Figure 3, and there is a corresponding reduction in the resources invested in each of these fields to  $B'$ . Whether the establishment of a police force is wise or not, depends upon an essentially technological question. If police activities are, for a range, more efficient than private provision of protection, then the  $R$  line will have the shape shown, and the police and court rectangle will have an area smaller than the sum of the two "savings" rectangles, for theft and locks.<sup>12</sup> This is, of course, what we normally find in the real world.

Note, however, that we do not carry investment in police protection to the extent that it totally replaces private protective expenditures. Clearly

<sup>12</sup>It may be suggested that society should not be interested in the saving of the resources of thieves, and hence that the value of the protection afforded by the police should be measured by the lock rectangle only. This, however, would be correct only to the extent that the resources would not be reallocated to socially acceptable production.

it is more efficient to have some protective expenditures by the owners of property. Automobiles are equipped with locks and keys, presumably because the expansion of the police force which could be paid for from the cost of leaving them off would be less effective in preventing theft than they are.<sup>13</sup> The total social cost of theft is the sum of the efforts invested in the activity of theft, private protection against theft, and the public investment in police protection. The theft itself is a pure transfer, and has no welfare cost, but the existence of theft as a potential activity results in very substantial diversion of resources to fields where they essentially offset each other, and produce no positive product. The problem with income transfers is not that they directly inflict welfare losses, but that they lead people to employ resources in attempting to obtain or prevent such transfers. A successful bank robbery will inspire potential thieves to greater efforts, lead to the installation of improved protective equipment in other banks, and perhaps result in the hiring of additional policemen. These are its social costs, and they can be very sizable.

But this has been a detour through the criminal law, our major subject is monopoly. To return to Figure 1, the rectangle to the left of the welfare triangle is the income transfer that a successful monopolist can extort from the customers. Surely we should expect that with a prize of this size dangling before our eyes, potential monopolists would be willing to invest large resources in the activity of monopolizing. In fact the investment that could be profitably made in forming a monopoly would be larger than this rectangle, since it represents merely the income transfer. The capital value, properly discounted for risk, would be worth much more. Entrepreneurs should be willing to invest resources in attempts to form a monopoly until the marginal cost equals the properly discounted return.<sup>14</sup> The potential customers would also be interested in preventing the transfer and should be willing to make large investments to that end. Once the monopoly is formed, continual efforts to either break the monopoly or muscle into it would be predictable. Here again considerable resources might be invested. The holders of the monopoly, on the other hand, would be willing to put quite sizable sums into the defense of their power to receive these transfers.

As a successful theft will stimulate other thieves to greater industry and require greater investment in protective measures, so each successful establishment of a monopoly or creation of a tariff will stimulate greater diversion of resources to attempts to organize further transfers of income. In Gladstone's England few resources were put into attempts to get favorable

<sup>13</sup>James Buchanan and Gordon Tullock, "Public and Private Interaction Under Reciprocal Externality," in *The Public Economy of Urban Communities*, Julius Margolis, Ed., Washington, D.C. 1964, pp. 52-73.

<sup>14</sup>The margin here is a rather unusual one. Additional units of resources invested in attempting to get a monopoly do not increase the value of the potential monopoly, but the likelihood of getting it. Thus they change the discount rate, rather than the payoff.



tariff treatment. In present day United States large and well financed lobbies exist for this purpose. The welfare cost in the first case was very low, in the second it must be quite sizable. An efficient police force reduces the resources put into the activity of theft, and free trade or an active antitrust policy will reduce the resources invested in lobbying or attempting to organize monopolies.

The problem of identifying and measuring these resources is a difficult one, partly because the activity of monopolizing is illegal. The budget of the antitrust division and the large legal staffs maintained by companies in danger of prosecution would be clear examples of the social cost of monopoly, but presumably they are only a small part of the total. That very scarce resource, skilled management, may be invested to a considerable extent in attempting to build, break, or muscle into a monopoly. Lengthy negotiations may be in real terms very expensive, but we have no measure of their cost. Similarly, a physical plant may be designed not for maximum efficiency in direct production, but for its threat potential. Again, no measure is possible. As a further problem, probably much of the cost of monopoly is spread through companies that do not have a monopoly, but have gambled resources on the hopes of one. The cost of a football pool is not measured by the cost of the winner's ticket, but by the cost of all tickets.<sup>15</sup> Similarly the total costs of monopoly should be measured in terms of the efforts to get a monopoly by the unsuccessful as well as the successful. Surely most American businessmen know that the odds are against their establishing a paying monopoly, and they therefore discount the potential gain when investing resources in attempting to get one. The successful monopolist finds that his gamble has paid off, and the unsuccessful "bettor" in this particular lottery will lose, but the resources put into the "pool" would be hard to find by economic techniques. But regardless of the measurement problem, it is clear that the resources put into monopolization and defense against monopolization would be a function of the size of the prospective transfer. Since this would be normally large, we can expect that this particular socially wasteful type of "investment" would also be large. The welfare triangle method of measurement ignores this important cost, and hence greatly understates the welfare loss of monopoly.

<sup>15</sup>This helpful analogy was suggested to me by Dr. William Niskanen.