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1. Introduction

Economic freedom is a concept yet to make its way formally into the economics vocabulary. Although there are many discussions of economic freedom, writers usually use the term in a vague way. Precisely what does economic freedom mean and why is the concept important? It is difficult to find writers who have attempted to define the term, and we have found almost no attempts to relate the concept of economic freedom to the analytic framework of economics.¹

Of course, the general concept of freedom is subject to considerable confusion, with different writers using the term in completely different ways. Without disputing the importance of inner peace, security, absence of fear or hunger, or psychic well-being unencumbered by certain undesirable emotional or mental states, we will use the term freedom to mean roughly the absence of coercion. This is the notion of freedom most people who discuss economic freedom have in mind.

This paper attempts to define economic freedom in a way that makes it consistent with what many people mean by the term, to connect that definition with the usual analytic framework of economics, and to provide a theoretical foundation for measurement of economic freedom.

In one of the few papers on the meaning of economic freedom, Stigler (1978) argued that economic freedom is synonymous with wealth or utility.² We disagree with this position. While

¹ Two exceptions are Stigler (1978) and Easton (1990).

² Stigler says "the distinction between wealth and liberty is not easily drawn, and in fact has not been undertaken in convincing explicitness."

definitions are arbitrary, some are more useful than others. Our definition is intended to emphasize certain important distinctions. According to our definition, a restriction on economic freedom could even raise wealth, and the removal of a restriction on economic freedom could reduce it. With our definition, we can think of people sacrificing economic freedom for other values, or other values for economic freedom.³ Our theoretical concept suggests a way to measure economic freedom (though that measurement may not be easy).

We will not attempt to define economic freedom itself. Instead, we will define restrictions on economic freedom. We follow Hayek (1960, pp. 11-22), Friedman (1962), and others in identifying restrictions on economic freedom with man-made coercion inhibiting voluntary economic transactions or requiring certain transactions. We believe people with widely differing opinions on the proper roles of government in society should be able to agree on the meaning of (restrictions on) economic freedom, and recognize that some of their disagreements may involve disputes over the connections between economic freedom and other desirable ends, and the relative importance of each. People ought to agree, for example, that an excise tax on alcohol and a prohibition on growing marijuana in one's own garden (even for one's own consumption) reduce economic freedom, whatever their value may be in promoting other ends. After we propose a definition of losses in economic freedom in the next section, we will explore examples to discuss the implications of that definition and to clarify it. We will then discuss certain fundamental issues that arise in defining losses in economic freedom and, at the end, make some remarks on why people do or should care about economic freedom and so why the distinctions our definition makes are important.

³ Economic freedom would often promote these other values, however.

2. Restrictions on Economic Freedom

A Tentative Definition

We will explore the following definition of restrictions on economic freedom.

Consider a constraint imposed by a third party on voluntary transactions among other people. The loss in economic freedom to those people from this constraint is the sum of the losses in consumer and producer surplus in those constrained transactions. If the constraint requires a person to take a specific action, the loss in economic freedom includes the cost to that person of that constrained action.

The term "transactions" refers as well to those a person conducts with himself. Thus a law preventing a person from growing and consuming a crop is a violation of his economic freedom. Notice that this definition automatically distinguishes and weights more and less important restrictions on economic freedom. We will clarify later the way we use the term "cost."

Constraints imposed by people versus those imposed by nature

We consider only constraints imposed by people. We want to distinguish these from constraints imposed by nature. One reason for this distinction is that the actions we would take to try to change those constraints are different. Economic freedom is not the same as technology, or wealth or utility. This does not mean that one set of constraints is more or less important or severe than the other. It merely suggests that for some purposes it is worth making this distinction.

Governments or third parties?

The most common source of man-made constraints is government. But we need not limit ourselves to constraints imposed by official governments: other people who try to prevent, control, or tax voluntary transactions also restrict economic freedom. When an entrepreneur must pay off thugs or gangs to operate a business (or suffer physical harm to himself and his business), the effects on the entrepreneur are the same whether we regard those thugs or the "official" government as the actual government. But once we admit this, there is no limit to how many governments may restrict a person's economic freedom or who they may be. We could, of course, discuss the loss in economic freedom caused by a particular party, such as an official government. Or we could discuss the loss in economic freedom imposed by all governments and thugs on particular people.

3. Basic Examples of Restrictions on Economic Freedom

We will begin exploring the consequences of this definition by considering very simple cases, and proceed to more complicated situations in which some difficult issues arise. We will initially assume that there is general agreement about the distribution of property rights among people in an economy,⁴ that property rights are complete (universal, exclusive, and transferable), with no transactions costs, and that the government owns no property. We also assume there is a legal system defining and enforcing those property rights. We will consider initially a single restriction on economic freedom, and leave for later problems that arise with multiple restrictions.

⁴ Thus we dispense with problems caused by private groups (e.g. Indian tribes) claiming that they have been dispossessed of rightful ownership in the past so that, say, physical occupation of land currently claimed by other parties would not (by them) be considered a loss of anyone else's economic freedom.

Transfers

Transfers between agents imposed by government represent a clear loss of economic freedom to those making the payments. Suppose the government taxes Peter \$100 to pay Paul \$100. Then Peter's wealth and economic freedom have been reduced by \$100. Paul is a recipient, and his wealth rises by \$100, but this transfer does not raise his economic freedom. Clearly, our use of the term economic freedom is at odds with Stigler (1978), who identified liberty or freedom with wealth or utility and would describe Paul's economic freedom as having risen. We certainly agree that Paul is now "free" to expand his consumption set, but we do not believe this represents an increase in economic freedom. Economic freedom is something an individual possesses until deprived of it by government or third parties. One advantage of thinking about losses in economic freedom rather than economic freedom itself is that it emphasizes this point: the transfer to Paul does not mitigate in any way Paul's loss of economic freedom from other restrictions.

An Excise Tax

We can obtain more insight into our definition of a loss in economic freedom by considering a simple excise tax on a commodity in which market forces are depicted in Figure 1. The tax restricts sales to level Q_0 , and the height of the shaded area represents the level of the tax. The tax causes producers and consumers to restrict their economic exchanges with each other; the shaded triangle shows the loss in producer and consumer surplus on these foregone transactions. On the sales of Q_0 that remain, the shaded rectangle shows the sum of the losses in consumer and producer surplus, so the entire shaded area captures the loss in economic freedom from the tax. The shaded rectangle also represents tax payments to the government, which it can disburse in any number of ways. Thus there may be other recipients of this tax revenue, but this does not increase the economic freedom of those recipients, although it increases their wealth. Later, in discussing tariffs, we consider the case

in which the tax income is redistributed to the same people who have been deprived of economic freedom.⁵

Government Quantity Coercion

Suppose the government requires people to consume exactly X units of a good. We will initially consider the case in which X is precisely the amount people would have consumed without the constraint: 20 units in Figure 2.⁶ Our definition implies that this constraint imposes a loss in economic freedom, even though the constraint imposes no loss in utility.⁷ The loss in economic freedom is the cost of consuming X units of the good: the sum of areas D and E in Figure 2. Although people would have chosen this quantity freely without the constraint, they lose economic freedom because they are no longer free to choose to do so; they are forced instead. Although our example concerns consumers, analogous arguments apply to constraints on firms, as when the government requires firms to provide a certain amount of health insurance or parental leave. (The following discussions of minimum and maximum consumption requirements also apply to production requirements or other constraints on firms.)

Suppose the government requires people to consume more than they would have consumed voluntarily without the constraint, such as 25 units when they would have bought 20. The loss in

⁵ This raises a fundamental issue that we discuss in the section below on "bundling."

⁶ Throughout this discussion, we assume that everyone affected by the restriction is alike. This simplifies matters by making the constraint the same on all people. It is not hard to generalize to cases of heterogeneity. The quantities in all examples and figures refer to per capita quantities.

⁷ Unless stated otherwise, we assume in all our discussions that there is no utility from economic freedom per se. We think this is not true (see the concluding section below), but it is a standard assumption in economics.

economic freedom is the cost of this required action: the area $A+B+D+E$ in Figure 2.⁸

Suppose instead the government requires people to consume less of the good than they would have chosen without the constraint, such as 15 units rather than 20. Then the loss in economic freedom is area $E+C$ in Figure 2. Area E represents the loss in economic freedom from being required to buy no less than the quantity 15. Area C represents the loss in economic freedom from being required to buy no more than the quantity 15. Figure 3 shows the result with an upward-sloping supply curve: the loss in economic freedom from a constraint that requires people to consume exactly 15 units (no more, no less) is area $C+G+H+E$ in Figure 3. The area E shows the loss in economic freedom from being required to buy no less than 15 units of the good. The area H shows a loss in economic freedom from a loss in producer surplus that equals a gain in consumer surplus; this gain in consumer surplus is an increase in consumers' wealth but not in their economic freedom. The areas C and G represent losses in consumer and producer surplus that are also losses in wealth.

Minimum Consumption Requirements

Consider a government restriction that requires people to buy at least X units of a good. The amount X may be more or less than people would have chosen voluntarily. The loss in economic freedom from this restriction is the cost of minimal compliance with the restriction. If the government requires people to buy at least 25 units of the good, the loss in economic freedom is area $A+B+D+E$ in Figure 2. If the government requires people to buy at least 20 units of the good (the amount they would have bought anyway), their loss in economic freedom is area $D+E$ in Figure 2. If the government requires them to buy at least 15 units of the good (less than they would have bought anyway), their loss in economic freedom is area E in Figure 2. If the supply curve were

⁸ If the supply curve were upward sloping, this area would be even larger because the constraint (which is applied to all demanders) would raise the equilibrium price.

upward-sloping when they are required to buy at least 15 units of the good, the loss in economic freedom is area E in Figure 3. In this case, the loss of economic freedom is less than the actual cost of buying those 15 units of the good: the fact that the price is higher is a result not of the constraint but of consumers' voluntary choices to buy more than 15 units.

Notice one consequence of this definition of economic freedom: the loss in economic freedom from a government minimal-purchase requirement that costs \$100 to comply with is the same as the loss in economic freedom from a lump-sum \$100 tax in which the government destroys the (real) tax revenue, even though people get valuable goods in return in the first case and not in the second case. This highlights one distinction between economic freedom and utility or wealth.

Maximum Consumption Requirements

Suppose instead the government requires people to buy no more than X units of a good. The amount X may again be more or less than people would have chosen voluntarily. If this restriction is binding, as if X is 15 units in Figure 2, then the loss in economic freedom is the loss in consumer and producer surplus, which is area C in Figure 2 (with a horizontal supply curve) or area C+G+H in Figure 3 (with an upward-sloping supply curve). If the restriction is not binding -- if X equals or exceeds the amount of the good that people would have bought voluntarily, then there is no loss in economic freedom from this restriction.⁹

A Note on Economic Freedom and Utility

Return to the case in which the government requires people to consume exactly X units of a good, where X is the amount they would have chosen voluntarily without the constraint. We saw

⁹ Of course, if demand rises, the restriction would become binding and would then reduce economic freedom.

that the loss in economic freedom in this case is $D+E$ in Figure 2. Now suppose the government reduces X . This clearly lowers utility as consumers are pushed away from their most desired consumption bundle. But it (initially) raises economic freedom, or, in our language, reduces the loss in economic freedom. For example, suppose $X=15$ in Figure 2. The loss in economic freedom is area $E+C$, which is smaller than $E+D$ because $C<D$. This may appear to be a strange result -- that people who are required to consume precisely the amount they would have chosen voluntarily could be less free than people who are required to consume less of the good. But this result appears strange only when one forgets the distinction between economic freedom and utility. While utility falls, there are two forces operating on economic freedom. The requirement that a person buy exactly X units of a good is a composite of two requirements: that he buy no less than X , and that he buy no more than X . When the government reduces X , economic freedom tends to rise because the loss in economic freedom from the minimum-consumption constraint falls: that minimum-consumption constraint becomes less severe. This is the gain in economic freedom of D in Figure 2. On the other hand, economic freedom tends to fall when the government reduces X because the maximum-consumption requirement becomes more severe. This is the loss in economic freedom of C in Figure 2. Whether a reduction in government-mandated consumption of a good lowers or raises economic freedom at the margin depends on the shapes of the demand and supply curves.

Restrictions on Asset Transactions

Suppose the government imposes a restriction that prevents you from holding some financial asset. We can derive a demand curve for that financial asset using standard optimal-portfolio analysis.

The loss in economic freedom from this restriction is analogous to the consumer-surplus loss from a prohibition on buying some good. If another asset that is a perfect substitute (in your view) is available, there is no loss of consumer surplus or economic freedom. Otherwise, the loss in economic

freedom corresponds to the foregone interest or foregone value of a portfolio with better risk properties.

The close analogy with consumer markets carries over to a requirement to hold a certain asset. The economic freedom lost each period is the total interest income (or total increase in portfolio value from risk-reduction) which the investor could have obtained without the restriction on some other asset. Thus in Figure 2 if a person would voluntarily hold an asset that the government forces him to hold, he loses economic freedom equal to the interest this asset earns, which is area E.¹⁰

Tax Payments and Economic Freedom

Some people have argued that government tax receipts serve as a useful proxy for the loss of economic freedom. Suppose the excise tax illustrated in Figure 1 represents the only interference on voluntary transactions. Figure 4 illustrates that at low tax rates the identification of tax revenues and loss of economic freedom is entirely appropriate. However, as tax rates increase, the gap between the two concepts widens. Indeed, for tax rates sufficiently high that receipts are falling, the two measures go in opposite directions. Tax revenue is zero at the prohibitive tax rate, whereas this is the rate that maximizes the loss in economic freedom.

To fill in details, let t denote a specific excise tax in this market and R represent tax revenue.

Thus

$$dR/dt = Q + t dQ/dt,$$

¹⁰ If the supply of the asset is upward sloping, the loss in economic freedom is area E in Figure 3.

with the second term negative. As for the loss in economic freedom, a small increase in the tax rate raises price to consumers by dp^D , so that the loss in consumer surplus reflected by this price increase is the "terms-of-trade" effect, Qdp^D . Producers see their price decreased by the tax, eventuating in a "terms-of-trade" loss for them of $-Qdp^S$. Adding these effects, the total increment to the loss in economic freedom, L , is

$$dL/dt = Q,$$

where dt equals the sum of dp^D and $-dp^S$. Thus the two curves in Figure 4 are tangent to each other at the origin, and at the prohibitive tax rate the "loss in economic freedom" curve becomes horizontal.

Economists are prone to dismiss welfare triangles as being relatively unimportant compared with rectangles. This, we submit, leads to gross error if tax rates are high or if government regulations prohibit certain types of economic transactions. A prohibition of market activity in Figure 1 leads to a loss of economic welfare (freedom) that is captured entirely by a triangle.

Economic Freedom is Not Economic Efficiency

Expand the setting, now, to include a variety of private transactions in which the government has levied excise taxes, including taxes and other restrictions in factor markets that create gaps between returns paid to factors across industries. These restrictions create inefficiencies corresponding to an inward shrinkage of the transformation schedule and inequality between the slopes of indifference curves and transformation schedules. The loss in efficiency due to these government restrictions and taxes, however, differs from the loss in economic freedom from those government actions. Recall the simple case in which the government taxes Peter to pay Paul, and suppose Peter pays a lump-sum (poll) tax. That case involves a loss of economic freedom without

any change in aggregate production or consumption. Restrictions on economic freedom do not net out gainers and losers as measures of aggregate inefficiency do. With widespread taxes and subsidies, economic inefficiency nets out the gainers and losers, but losses in economic freedom do not net out. Peter's loss in wealth is Paul's gain, but Peter's loss in economic freedom is not offset by any increase in economic freedom for Paul. In the case of excise taxes, the loss in economic freedom is reflected in dead-weight welfare losses to society (triangles of the type shown in Figure 1) and the tax payments (the rectangle in the figure). While the government may redistribute those tax payments to other people, those payments nevertheless represent losses in economic freedom.

Restrictions on Economic Freedom Affect Other Markets

While measures involving total tax collections, on the one hand, or total net efficiency losses, on the other, underestimate the loss of economic freedom represented by a government activity, we can contemplate a measure that would typically overestimate the loss in economic freedom. Consider any government activity such as a tax, expenditure, or regulation. In an interconnected economy each such activity disturbs many commodity and factor markets, changing many relative prices. For each such price change there are gainers and losers: net suppliers and net demanders of goods whose relative prices change. One could add all these losses (and ignore the gains) when measuring the loss in economic freedom from the governmental activity.¹¹ But that is not what our definition says to do. Our definition tells us to include only the losses from transactions that are directly constrained. A government restriction on buying good X may change other relative prices and, through this route, alter real incomes of net buyers and sellers of other goods. While those changes in real income result

¹¹ It also raises another important question that we defer until later: should such a calculation be made separately for each and every activity of government, or should some or all of these activities be "bundled", so that only net losses in consumer and producer surplus (net of any gains) represent a loss in economic freedom? We postpone our discussion of this very important issue of bundling until section 6.

from the government action, they are not restrictions on economic freedom: no one is restricting transactions involving those goods. This implies that freedom and welfare are fundamentally different.

4. Some General Equilibrium Considerations

The earlier discussion of a single excise tax illustrated the loss of economic freedom reflected in losses in consumer and producer surplus in the market being taxed. In this section we sketch out a scenario to analyze some general-equilibrium ramifications of government restrictions.

Pears, Peaches and Cream

Consider an economy producing and consuming three commodities: pears, peaches, and cream. Peaches and pears are substitutes to consumers, whereas peaches and cream are complements. We assume there are no connections on the supply side. From an initial undistorted equilibrium, suppose the government levies an excise tax on peaches. This imposes losses in economic freedom of the type illustrated by the shaded areas in Figure 1. Here, though, the rise in the price of peaches to consumers affects the pear and cream markets. The demand for pears shifts to the right, and the demand for cream shifts to the left. The price of pears rises. Although net demanders of pears lose wealth from this price rise, they do not lose economic freedom. Focus on someone who is a net buyer of peaches; this person lost economic freedom from the tax on peaches. If this person is a large net seller of pears, she will gain wealth on net from the tax on peaches since her terms of trade improve. If we included this change in the terms of trade in our measure of the loss of economic freedom, this person would not have suffered any loss in freedom despite the imposition of the tax. This example shows why one should ignore such terms-of-trade changes in

measuring the loss in economic freedom from the tax on peaches, although they properly belong in a calculation of changes in economic welfare.

Now suppose the tax on peaches remains fixed and a tax is levied on pears. There is a loss in economic freedom to transactors in the pear market. But there is a further calculation now that needs to be made, to take account of the greater demand for peaches, since they are substitutes for pears. This shift in demand, due to the tax on pears, alters the loss in economic freedom from the tax on peaches. This is akin to a "volume-of-trade" effect, as in international markets. However, the sign of the change in economic freedom is precisely opposite to the effect typically considered for economic welfare. In standard welfare analysis an increase in consumption of an item that is taxed (peaches) at a given rate increases economic welfare because the item is worth more at the margin to consumers than the marginal cost of production. This very same change, however, is an increase in the volume of activity in a market that restricts economic freedom.

Again retain a fixed tax on peaches and suppose that (instead of a tax on pears) the government imposes an excise tax on cream. Since peaches and cream are complements, the direct loss in economic freedom from the tax on cream is accompanied by a reduction in the loss in economic freedom from the tax on peaches. The change in the peach market might even outweigh that in the cream market. This is akin to the "second-best" phenomenon in welfare analysis -- here an increase in one restriction (the tax on cream) deflects demand from a market that is already taxed (peaches), with the possibility that the loss in economic freedom reflected in the entire tax system will have been mitigated.

The examples discussed above clarify our definition of economic freedom: the change in economic freedom from adding a new constraint is the sum of losses in consumer and producer surplus associated with the newly-constrained transactions plus the altered losses of economic freedom from constraints on other voluntary transactions.

5. International Transactions

To the extent that a country's residents are involved in international transactions, governmental restrictions on voluntary transactions affect the economic freedom of foreign as well as home residents. In principle a measure could be conceived of the loss in economic freedom imposed on home residents by the totality of all restrictions, whether imposed by home third parties or government, or alien ones. Instead, we concentrate on the concept of the loss of economic freedom entailed by restrictions imposed by home third parties or government, thus facilitating a comparison of the restrictive policies adopted by different nations.

A Ban on Foreign Goods

Our first simple scenario involving international transactions presupposes that we are entirely dependent on foreign sources for some commodity. Figure 5 illustrates a free trade equilibrium at point E, with the total of our demand and foreign demand (D^*) matching total supply, all of it foreign (S^*). If our government had banned all imports of this commodity, the equilibrium abroad would be shown by point A. Potential home consumers look enviously at price OB, and would demand quantity BC at that price. However, triangle EBC overestimates the loss in home consumer surplus as a result of the ban on imports. If there were no government interference, the price would be OG, so that the ban wipes out home consumer surplus by the triangle EGI.

Figure 5 also indicates the shaded area, BGFA of relevance to foreign producers. The home country's ban on imports from abroad would represent a restriction on the economic freedom of two groups: home consumers lose area EGI, and foreign producers lose BGFA. The import ban admittedly favors one group: foreign consumers gain area GHAB. In calculating the loss in economic freedom to home residents and foreigners, should this gain to foreign consumers be netted out of the losses to home consumers and foreign producers? We have argued against this procedure.

In discussing government taxation of Peter to pay Paul, we emphasized the loss of economic freedom to Peter; the gain to Paul is an increase in his welfare, but not in his economic freedom. The present situation is analogous, but slightly different in that the ban on trade results in a loss of freedom (and welfare) to home consumers and foreign producers which outweighs the gain in welfare (but not in freedom) to foreign consumers. This discrepancy is the deadweight loss from preventing mutually profitable trade.

A Tariff Hike

Turning now from a complete ban on imports to a situation in which they are allowed, subject to a (specific) rate of duty, we analyze the effect on economic freedom of a small tariff hike, and contrast this with the effect of such an increase in duties on real income or welfare in the home country. We suppose that tariff rates are lower than the "optimal" rate, so that a small increase would, via standard analysis, raise home real incomes and tariff revenue. We assume, now, that changes in our rate are sufficient to force changes in foreign supply price (the "large-country" case) and that foreign producers have no local market. However, we now include a set of home producers who share the home market with imports.

The change in real income at home (dy) can be broken down into a terms-of-trade effect and a volume-of-trade effect:

$$dy = -Mdp^* + t dM,$$

where M represents the volume of imports, t the specific tariff rate, and p^* the foreign price of importables (our terms of trade). We have assumed this to be positive for a small rise in t from low levels. This net gain is made up of three parts: (i) the government's tariff revenue increases by

$d(tM)$; (ii) home suppliers have an increase in producer surplus given by $x dp$, where x denotes home production and p is the domestic price behind the tariff wall; and (iii) home consumers lose real income by an amount $D dp$, where D is total home demand. The change in real income abroad is captured only by the terms-of-trade effect:

$$dy^* = M dp^*$$

As for the loss in economic freedom produced by the tariff hike, home consumers have lost $D dp$. Any subsequent redistribution of tariff proceeds may help to compensate consumers, but if the amount of such redistribution received by any consumer is independent of his purchases, the restriction on economic freedom is not thereby lessened. The change in real income and the change in economic freedom are separate concepts. Abroad the loss in economic freedom is $-M dp^*$, so that the home government's increase in the tariff rate has resulted in a total loss of economic freedom of:

$$(x + M) dp - M dp^* = x dp + M dt.$$

One final calculation is instructive. The home government might claim that its action has raised home real incomes by imposing a loss in economic freedom. How do these two aggregates compare? The loss in economic freedom exceeds the gain in the home country's real income; this excess is shown by:

$$\{D dp - M dp^*\} - \{-M dp^* + t dM\} = D dp - t dM$$

That is, the loss in economic freedom exceeds the gain in home real incomes by the sum of the loss in consumer surplus and the deadweight loss to the world of the tariff hike, the latter captured by the tax spread times the reduction in imports.

6. Bundling Constraints on Voluntary Transactions

A Fundamental Problem in Measuring Economic Freedom

Governments impose many constraints on voluntary actions. People are often beneficiaries of some government programs and losers from others. In a typical welfare state, the government may take $\$X$ from an average person and return $\$Y$ worth of transfer payments and goods (both public goods and government-provided private goods); typically we have $\$X > \Y .¹² *Any attempt to measure economic freedom in a country like this must come to grips with a fundamental issue: roughly, does the loss in economic freedom refer to the gross take of the government $\$X$ or the net take of the government $\$X-\Y ? We will refer to this as the bundling issue. The question is whether various government actions should be bundled together and considered as a group, so that a person's loss in economic freedom from the bundle of actions refers to his net (consumer and producer) surplus loss from this bundle of government actions, or whether each government action should be considered separately, so that a person's loss in economic freedom from each separate government constraint is his (consumer or producer) surplus loss from that constraint, and his total loss in economic freedom from all the government actions is the sum of these separate losses in economic freedom. These two ways of measuring economic freedom would give vastly different answers in any real-life situation, particularly in societies with high taxes and a large government sector. We will argue below that the answer to the bundling problem is not at all clear -- a good case can be made for (and against) two*

¹² $\$Y$ represents the typical person's valuation of the transfers and goods the government provides rather than the cost of those goods and transfers to the government.

alternative answers with quite different empirical consequences. Any attempt to measure economic freedom and compare it over time or across countries must implicitly assume some answer to this fundamental bundling question. Yet the following sections suggest that doing so is fraught with difficulties.

Two Bundling Problems

Suppose the government imposes two (or more) constraints on voluntary economic transactions, and that someone loses consumer surplus from one constraint and gains it from another constraint. Is his loss of economic freedom the net loss in consumer surplus or the gross loss (from the first constraint)? In other words, should we "bundle" together some or all government actions before calculating the loss in economic freedom (as we would to calculate the net effect on a person's wealth)?¹³ Or should we consider each government action separately and then sum the losses in economic freedom, where they occur, from these actions? (These two procedures obviously lead to different measures of the loss in economic freedom.)

We can consider two subsets of this question. First, suppose the government imposes two (or more) constraints with opposite effects on a person's wealth, but that the government constraints do not restrict in any way the person's choices of how to allocate his remaining net wealth. For example, the government may levy a lump-sum tax¹⁴ and provide a lump-sum transfer payment to the same person. The first bundling question is then whether the person's loss of economic freedom is the gross tax payment, or the tax payment net of the transfer.

The second part of the bundling question is whether we should consider the gross or net

¹³ As in the transfer example above, we never aggregate effects on consumer and producer surplus across people before calculating economic freedom.

¹⁴ We consider a lump-sum tax here not for realism, but because we have already discussed the key issues associated with a distorting tax.

losses in producer and consumer surplus of several government constraints on how people allocate their wealth across various goods. Suppose, for example, that the government levies a \$10-per-unit tax on consumption of a good and subsidizes producers of the good \$10 per unit. The second bundling question is whether there are any losses in economic freedom corresponding to the deadweight losses associated with the tax individually or the subsidy individually, or whether the fact that these distortions to resource allocation cancel each other also means the corresponding loss in economic freedom is zero.

We do not believe there is a clear answer to the bundling problem: we believe that there are several alternative notions of economic freedom which answer the bundling question in different ways, and that no single measure captures all the features of economic freedom that most people have in mind when they use that term. We now present several short, highly stylized examples in which we think there is room for disagreement about the best answer to the bundling problem.

(1) Pass the Buck (the Circle Game)

Suppose the government forces people to sit in a circle and to give a dollar to the person on one's left. Each person, therefore, does two things: gives a dollar and collects a dollar.¹⁵ The government's requirements do not reduce anyone's wealth. The question is whether it reduces economic freedom.

One answer is to consider the requirement to participate in the circle as the constraint on people, which means bundling together the required payment with the left hand and receipt with the right hand. Then we would say there is no loss in economic freedom. The other answer is not to bundle these constraints: to separate the requirement that one must pay a dollar from the fact that

¹⁵ The receipt of a dollar from the person on one's right could be optional: one could perhaps refuse to take it, but there is no reason in this setup for anyone to refuse to do so.

the government's circle program also provides each person with a dollar. Then we would say each person loses one dollar in economic freedom from the requirement to participate in the circle, though no one loses wealth (or, perhaps, utility). The unbundling solution makes a clear distinction between constraints that lessen economic freedom and changes in wealth.

Suppose the government taxes Peter \$100 to pay Paul \$100, and taxes Paul \$100 to pay Peter \$100. To focus on the key question, suppose these are lump-sum taxes. If we bundle the two constraints together, we would say the loss in economic freedom is zero (and equal to the loss in wealth). If we unbundle the two constraints, the loss in economic freedom is \$200 (\$100 to each person).

(2) A Withholding Tax

Suppose the government does two things if you work an additional hour: out of each additional dollar earned, (1) it takes 40 cents as withholding tax, and (2) it refunds 10 cents the following May. If we bundle the government activities, we would say the loss in economic freedom is 30 cents (plus several months' interest on the 40 cents) per extra dollar earned. If we unbundle them, we would say the loss in economic freedom is 40 cents (the amount people were forced to pay).

We might want to bundle, however, when the government does several things if people undertake some voluntary transaction. We could say these several government actions jointly form a constraint on the transaction. The loss in economic freedom from this constraint would then be the net sum of the losses in consumer and producer surplus in those constrained transactions: we would bundle together these government actions before calculating the loss in economic freedom. A withholding tax is an example of a forced loan to the government, to which we return below in the subsection on perceptions.

(3) A sales tax with a lump-sum transfer to consumers

Suppose the government levies a \$10-per-unit tax on consumption of a good and uses the tax revenue to finance lump-sum transfer to the same people who happen to buy the good. (We will suppose that the subsidy is lump-sum, so it does not depend on the decision to buy or how much to buy.) If we bundle the tax and the transfer, the loss in economic freedom is the shaded triangle in Figure 1. If we unbundle, the loss in economic freedom is the entire shaded area in Figure-1.

(4) A maximum-consumption constraint with an offsetting lump-sum transfer from consumers to producers

Look back at Figure 3. Suppose the government requires that people consume no more than 15 units of a good. We argued earlier that the loss in economic freedom from this constraint is $H+C+G$. Now suppose the government combines this constraint with a lump-sum tax on consumers equal to H and a lump-sum transfer to producers equal to H . If we bundle these government actions together, we would say the loss in economic freedom is $C+G$, which also equals the efficiency loss from the maximum-consumption constraint. If we unbundle, then we say the tax/transfer program is like taxing Peter to pay Paul: it causes a loss in economic freedom equal to H . And since we are unbundling, we add this loss in economic freedom to the original loss $H+C+G$. Then we would say the total loss in economic freedom is $2H+C+G$.

(5) A sales tax and a production subsidy

Suppose the government levies a \$10-per-unit tax on consumption of a good and subsidizes producers of the good \$10 per unit. The tax alone, aside from the disposition of the tax revenue, causes a loss in economic freedom equal to the shaded area in Figure 1. The subsidy alone, aside from the taxes to finance it, causes no loss in economic freedom. If we unbundle, the loss in

economic freedom is then the shaded area in Figure 1. If we bundle, there is no loss in economic freedom.

(6) Prohibitions on Sales to Particular Groups

Suppose the government prohibits females from buying goods and that this prohibition is effective.¹⁶ Figure 6 shows the supply, the demand by males, and the total demand by males and females. The loss in economic freedom from an effective prohibition on female customers is area $B+C+D$. The fall in demand lowers the price, so male customers gain wealth. Area D is part of the loss in producer surplus from the restraint preventing sales to females: the part that is a gain to males.

Now suppose the government adds the constraint that males cannot buy the good. Given the prohibition on females, this prohibition on males reduces economic freedom by the amount $A+D+E$. So if we unbundle these two constraints, the loss in economic freedom would be $A+B+C+2D+E$, while if we bundle them the loss in economic freedom would be $A+B+C+D+E$. Since any restraint on a group of people can be reinterpreted as a constraint on each member of the group, or each subset of the group (such as males and females), it appears we must bundle the constraints in this case. In general, it appears that whenever a constraint on a single good¹⁷ applies to many people, we should bundle the constraints.

¹⁶ Sweden once restricted sales of liquor to females. An effective prohibition means that males cannot buy liquor for resale to females.

¹⁷ Here the question of what is a single good is not semantics: the answer is whatever the government considers to be the good for purposes of enforcing the constraint.

Perceptions

One possible solution to the bundling problem aside from complete bundling or complete unbundling involves bundling in cases where people perceive government actions to be bundled. If people think two or more government programs or constraints are linked, then we would bundle them. Otherwise we would unbundle them. But this solution introduces a new "expectations" feature that creates difficulties for measurement of economic freedom. And it also creates other new problems, such as how to deal with situations in which people differ in their perceptions about how government programs are linked, how to deal with cases in which people have never thought about the issue, and how to deal with situations in which people think programs are weakly linked.

Nevertheless, differences in perceptions appear to matter. Suppose the government requires Peter to pay \$100 to Paul in year 1, and requires Paul to pay \$110 to Peter in year 2. Moreover, suppose the market interest rate is 10 percent per year. There are at least two ways to calculate the loss in economic freedom.

(1) We can view this as two separate tax/transfer schemes (see "pass the buck" above).

Then the loss in economic freedom in year 1 is \$100, and the loss in economic freedom in year 2 is \$110. The discounted present value of the loss in economic freedom is \$200.

(2) Alternatively, we can view this as a forced loan. Then the loss in economic freedom is \$10 (in one of the years).

Which of these views should we adopt? The answer perhaps depends on the perceptions of the people involved. If Peter views this constraint as a tax rather than a loan, then view (1) seems appropriate. But if Peter views the constraint as a forced loan, view (2) seems appropriate.

A Suggested Guide to Bundling

A general principle to guide bundling might be the following: ask whether the candidates for bundling all consequences of a single voluntary (individual) choice; if so, bundle the constraints; if not, do not bundle. In the withholding-tax example, this principle implies the loss in economic freedom would be 30 cents per dollar earned. On the other hand, this principle implies we should not bundle a sales tax and a lump-sum transfer to the people who happen to buy the good.

7. Some Other Issues

Capital Gains and Losses

A Puzzle

Restrictions on voluntary exchanges often impose capital losses on owners of assets. Suppose Smith owns an apartment building. The government puts rent controls on the building. This reduces Smith's wealth by the discounted present value of the higher rents he could have obtained in voluntary exchanges. Should we say Smith loses this discounted present value in economic freedom at the date the rent controls appear? Or should we say Smith suffers a loss of economic freedom each year equal to the difference between the free-market and price-controlled rent?

Now suppose Hume buys Smith's building at the equilibrium price, which reflects the rent controls. Hume does not lose wealth when he buys the building; he pays the market price. But when Hume owns the building, he is coerced by the government not to engage in certain voluntary exchanges (renting the apartment at a price above the controlled price). This constraint applies each year Hume owns the building. According to our definition, Hume suffers a loss in economic freedom each year. Smith clearly suffers a loss of wealth equal to the fall in the price of the building he sold Hume. Does Smith lose economic freedom?

The Solution

Each period, the owner of the building suffers a loss in economic freedom equal to the difference between market and controlled rents. But the government does not impose any constraints on sales of buildings. We noted near the end of section 3 that restrictions on economic freedom affect other markets. As we explained there and in the example of peaches and cream, losses of wealth in those other markets are not losses in economic freedom. So Smith's capital loss is not a loss of his economic freedom, though it equals the present value of expected future losses in economic freedom.

Alterations in Market Structure

Suppose the government restricts entry into a market and thereby allows the market structure to change from competition to monopoly or some variant of oligopoly. For example, the government may prevent a newly-arrived, foreign-trained doctor from practicing medicine although he may be willing to charge less than a local doctor who has been certified for practice by state boards issuing certifications. This causes a loss in economic freedom much like those discussed earlier.

Alternatively, suppose the government forces producers in an industry to restrict production, and the price rises enough that each producer gains, i.e. the government forces producers to cartelize. (Crop restrictions provide an example.) Then the loss in economic freedom is the consumer surplus loss to buyers: the shaded area above P_e in Figure 1.¹⁸

Sometimes a government restriction that appears to be ineffective causes a loss in economic freedom. We argued earlier that a government restriction saying people could not buy more than X units of some good causes no loss in economic freedom if X equals or exceeds the amount they

¹⁸ If any producers lose income on sales of this crop as a result of this crop restriction, those income losses add to the loss in economic freedom. In the text we assume demand is inelastic.

would buy anyway. This conclusion changes if the restriction alters market structure. For example, suppose a local firm competes with a number of foreign firms in a competitive industry. With free trade, the local firm is a price taker. We assume there is a law preventing other local firms from entering the industry. But this law prevents them from doing something they would not do anyway, so it does not reduce economic freedom. Now suppose the government imposes an import quota equal to the amount that people would import anyway. This changes the demand conditions facing the local firm and (with the laws against entry by other local firms) gives it a degree of monopoly power. The local firm raises its price. The combination of these two restrictions (neither of which reduces economic freedom individually) causes a loss in economic freedom.

Government ownership and the system of property rights

One way to define economic freedom is relative to a system of property rights. Property rights may be like bundles of sticks, with each stick representing the right to use property in a particular way. Given any arbitrary initial distribution of property rights, restrictions on economic freedom occur if the government changes, violates, or refuses to enforce those property rights. A problem with this way of viewing economic freedom is illustrated by a 50-percent income tax. One could say the government owns half of all labor services. Then when someone sells labor services, a 50% income tax would not reduce economic freedom. It would not be a tax at all but only a recovery of the government's property. Restrictions on economic freedom would lose all meaning, since we could always say the initial property rights only gave a person a right to sell if he pays the tax. This would be a twist of language that would, if permitted, make the concept empty. If we allow this twist of language, we must say that certain systems of property rights are themselves violations of economic freedom.

An alternative way to define economic freedom is relative to a particular system of property rights. Then some systems of property rights violate economic freedom (and some more than others). In particular, one could argue that if the government owns any valuable resource, this causes a loss in economic freedom. This is a natural extension of the notion that a tax on sales of a good (such as labor services) results in a loss in economic freedom of the tax payment plus the deadweight social loss from the tax. Recall that a tax of k percent is equivalent to the government saying it owns k percent of the good (and is just collecting its revenue from the sale). If k is 10 percent, 50 percent, or 90 percent, we say there is a loss in economic freedom equal to the shaded area in Figure 1. Now suppose k rises to 100 percent, in which the government owns the property. The loss in economic freedom is the entire area above the supply curve and below the demand curve. So, by the analogy with a tax, government ownership of any good or asset causes a loss in economic freedom.

Externalities

In a world with a complete (universal, exclusive, and transferable) set of property rights and zero transactions costs, there would be no externalities. In a world with either incomplete property rights or with transactions costs, externalities can arise. We then must ask whether it is a violation of economic freedom for A to impose negative externalities on B, and whether various possible legal rules for liability and procedures for obtaining remedies restrict economic freedom. We do not know of a satisfactory answer.

Consider a world with complete property rights but with transactions costs. Bentham imposes an externality on Blackstone and Blackstone has legal recourse for a remedy, but at a cost that leads Blackstone to choose not to seek that remedy. (Assume the efficient solution involves some alternative action by Bentham, so that Blackstone's failure to seek a remedy creates an outcome that

would not be efficient without transactions costs.¹⁹ We might say this restricts Blackstone's economic freedom (if Bentham is the government or if restrictions on economic freedom can be created by any third party). If Blackstone chooses to sell his property, the externality costs him some surplus in that trade (because his property is less valuable than otherwise).

Alternatively, we might say that this does not restrict Blackstone's economic freedom. We might say Blackstone's property rights are rights to use his property as he sees fit, including the right to seek a costly legal remedy in case of a violation by Bentham. When Blackstone purchases the property, he knows that in certain cases the costs of seeking a remedy are high enough that he would not do it. Bentham's actions are not, then, restrictions on Blackstone's trades because Blackstone never owned the right to completely unpolluted property: he owned only the right to seek legal remedy for violations, which he chose not to do.

In one way, this solution seems good. It avoids confusing the amount of economic freedom with the extent to which government provides a certain public good, viz. an efficient system of liability rules and procedures for seeking remedies. For example, whether the law specifies an efficient standard contract for certain transactions (to minimize transactions costs) is a different issue from whether the government restricts economic freedom. Similarly, a government may do a poor job of providing inexpensive legal remedies (the tort system may make the wrong choice between negligence and strict liability), but that is not in itself a restriction on economic freedom. Suppose the government says, "you can seek a remedy only by paying us a million dollars." Perhaps if people know about this in advance, then the externality does not violate economic freedom. But if the government changes the rules in mid-game, then the government violates economic freedom because the

¹⁹ If the solution is efficient, then there is the additional issue that transactions costs have changed the distribution of wealth: Blackstone loses and Bentham gains relative to the no-transactions-cost economy. Then the action that causes the externality may restrict Blackstone's economic freedom.

government refuses to enforce property rights, and so takes property.

Suppose legal remedies become more expensive because rising congestion in the court system causes long delays. Ideally, we would say that if this represents a change in the rules, then it is a violation of economic freedom. If the rules instead say, "sometimes the courts become more congested and this causes delays," then congestion can occur without a change in the rules and so without a violation of economic freedom. Whether a change in the rules occurs depends on what the government says it is doing when it provides the public good of the legal system.²⁰

On the other hand, this solution to the problem of externalities is very unsatisfactory. If someone knows he may be robbed (perhaps by the government), we want to say the robbery (as well as the threat of robbery) reduces the victim's economic freedom. We do not know of a general principle to distinguish between these cases of robbery and pollution. So we do not have a solution to the question of how to include externalities in a measure of losses in economic freedom.

8. Conclusions

We have proposed and explored a definition of restrictions on economic freedom. The definition corresponds closely to what most people have in mind by this term. It is also explicit enough to relate it to standard economic concepts and to guide measurement for comparisons of economic freedom over time and across countries. On the other hand, there are certain fundamental issues, such as those involving bundling and externalities, that create difficult questions. These fundamental issues must be addressed, explicitly or implicitly, in any attempt to measure economic

²⁰ Jack gives Jill some property, Jill adds inputs and raises its value. Jack takes possession of the property one day when Jill is away. Whether this reduces Jill's economic freedom depends on whether Jill acquired permanent or temporary rights to the property in their initial transaction. Similarly, we must know what people reasonably expected of the legal system to know whether there has been a change in rules and a reduction of economic freedom.

freedom.

Our definition of economic freedom differs from Stigler's (1978). Stigler argued that the reason for a limitation on choice -- whether it is due to poverty or actions of other people -- "is elusive." (p140), and that a person suffers in either case²¹. We agree, but we think that is not the issue. One may be interested in the distinction because one wants to design a remedy. That remedy may be economic growth or may be a change in government policies. It is important to understand the source of limitations on choices to design a remedy for these limitations.²²

There is another, more important reason to distinguish economic freedom from utility or wealth. We have, throughout the paper, discussed the utility effects of government restrictions as if utility depended only on consumption of goods and services. While this is a standard assumption in economics (and is perfectly adequate for most purposes), we think it is a mistake when thinking about

²¹ Stigler says, "Whether the state forbids me... to use more than ten gallons of gasoline a week, or whether I am prevented from doing so by its high price (not including taxes) is of little direct significance to me: in either case my driving is limited by decisions (to ration or to buy gasoline) of my fellow citizens." We think that the distinction is important -- at least because it affects what that person might want to do to change the situation.

²² Stigler's second argument is that it is impossible to distinguish between limitations on choice by coercion and by voluntary actions of others. Stigler gives several examples. First, there is little demand in a community for a symphony, which prevents it from occurring and so prevents Stigler from attending. Stigler argues that this reduces his utility, which he identifies with freedom. The key point for Stigler is that he is affected (via market prices) by the behavior of others. People may prefer for others to act differently, but this (for us) has little to do with freedom.

Stigler's second example concerns a high price for symphonies due to a low demand caused by a high income tax. He considers a case in which the income tax was not intended to reduce the demand for symphonies, but has that effect. Our definition implies that a loss of consumer or producer surplus in the symphony market is not a loss in economic freedom because no one is coerced to buy or not to buy symphony services, though people lose economic freedom directly from the labor income tax.

Stigler's third example involves user fees for the court system and the distinction between a fine for a parking violation and a rental fee for the parking space. These issues involve government property (the courts, the parking space), which we have argued may violate economic freedom. But this does not provide a complete answer to Stigler's question. Governments may charge a fee for use of the legal system to define or enforce property rights. We have not addressed the issue of whether these fees reduce economic freedom, and we are not sure of the answer.

economic freedom. Economic freedom should enter as a separate argument, in addition to consumption of goods, in the utility function.²³ We think it is clear from introspection and casual observation of people that people prefer to make their own choices than to be coerced even when they would voluntarily make the same choice as the coercer.²⁴ Economic freedom may also be an input into the production of wealth (we think it is), but that is not its only value to people. And any measure of economic freedom, or restrictions on it, must come to grips with the fact that some kinds of restrictions are more severe than others.²⁵ Our measure of restrictions on economic freedom attempts to weight various restrictions in a way that is reasonable, close to the weights that people probably attach to these decisions, and consistent across a wide variety of applications. Our definition of economic freedom also provides a precise guide for measurement of economic freedom, once some decisions are made about bundling and externalities.

²³ Suppose a person could be wealthier (by any normal measure) by moving to Albania, where the government may (for some reason) provide him with substantial material goods. He may choose not to move there, nevertheless, because it is less free. Or he may choose to move there, raising his utility despite the loss of freedom. Freedom differs both from wealth and utility. We think people value freedom and wealth (among other things), and make decisions based on tradeoffs among these ends.

²⁴ People (of all ages) often say things like, "I'll do it anyway, I just don't want to be told to."

²⁵ Indeed, it seems impossible to "count" restrictions on economic freedom in a way that does not weight severity.

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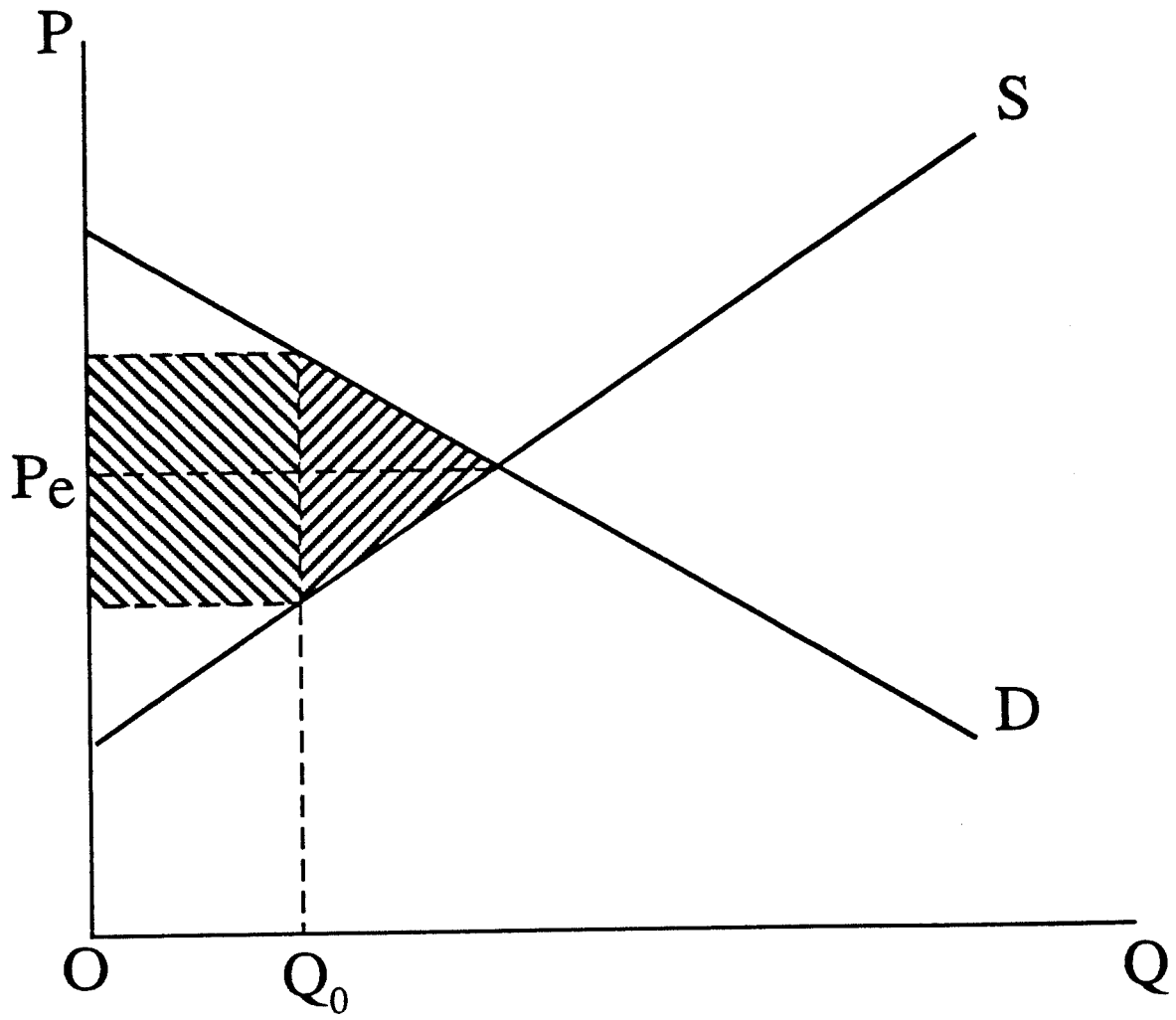


Figure 1

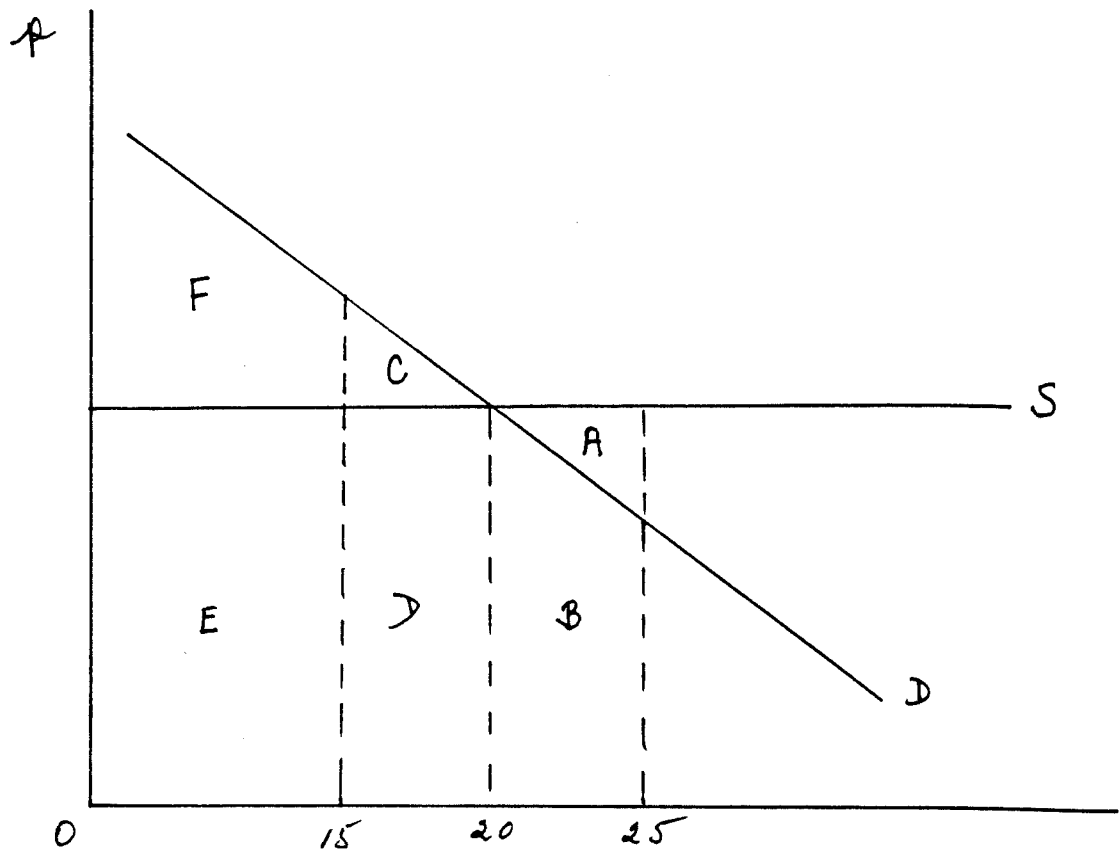


FIGURE 2

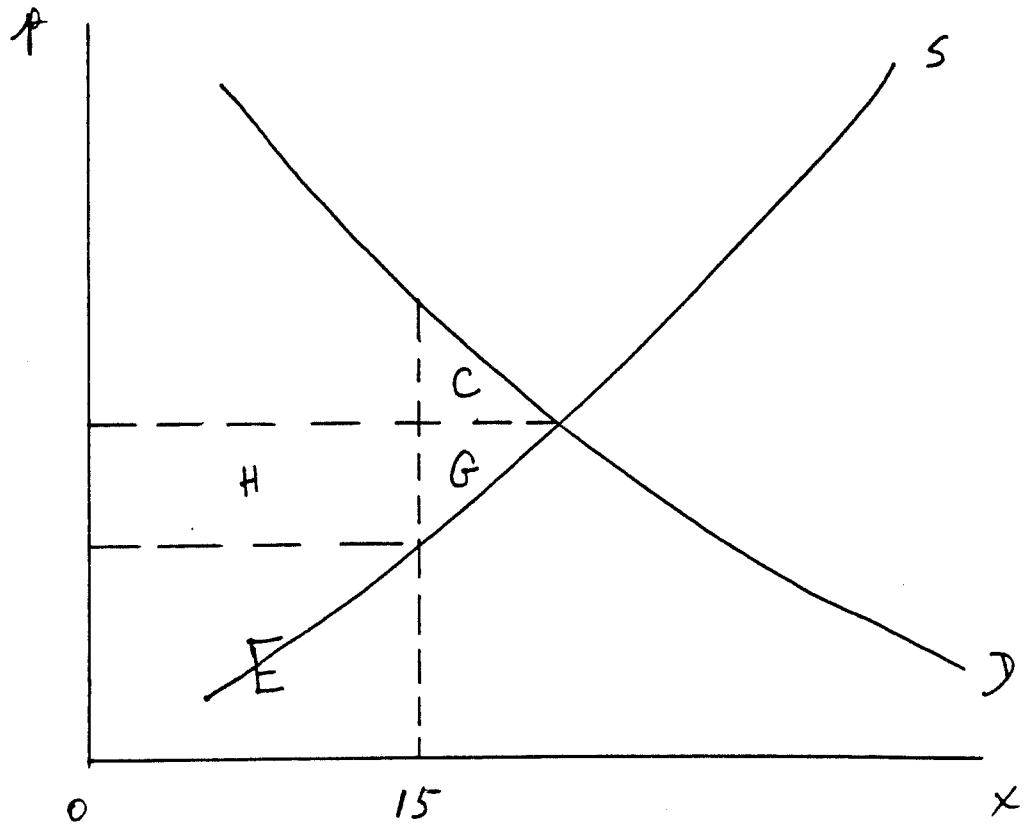


FIGURE 3

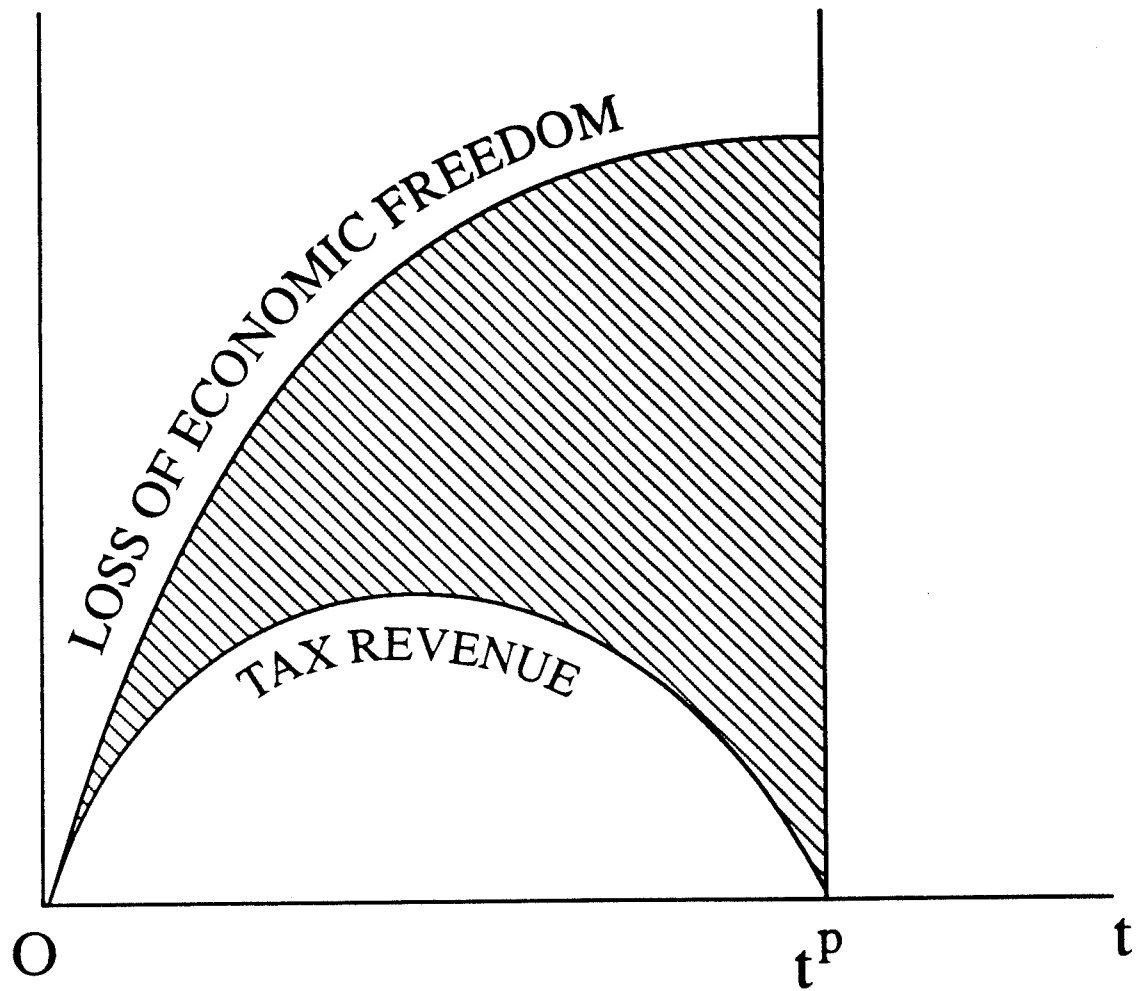


Figure 4

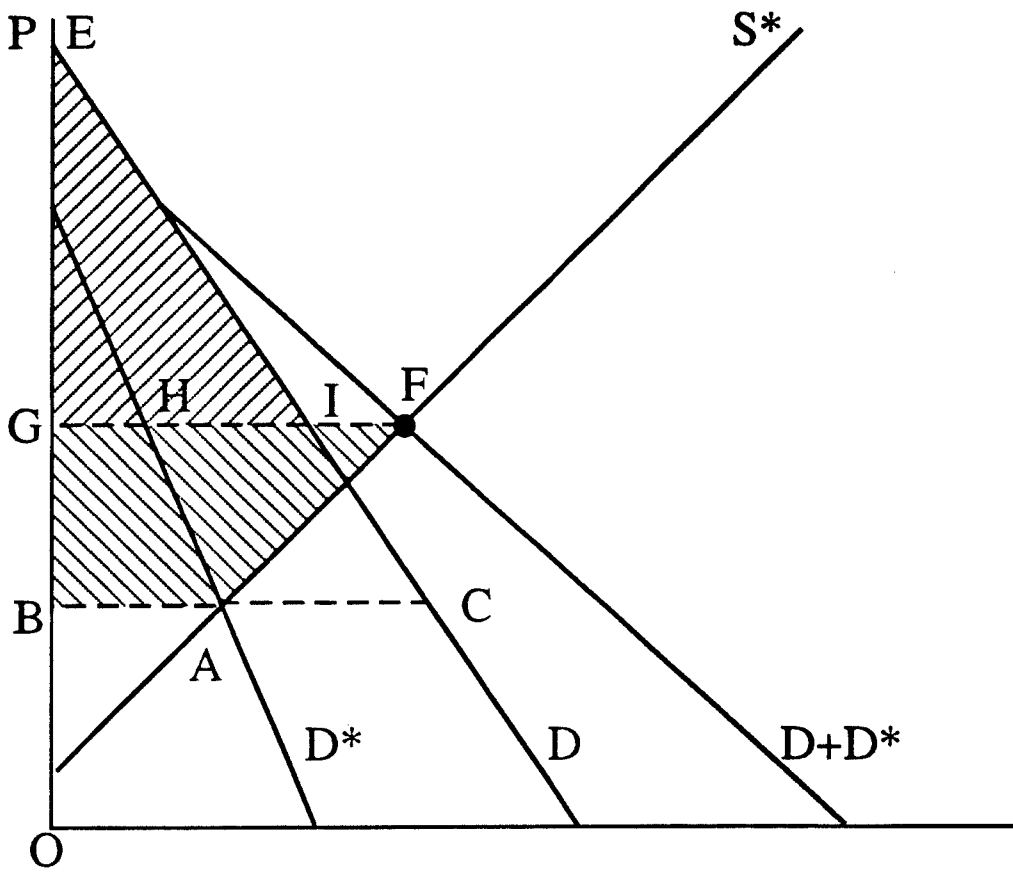


Figure 5

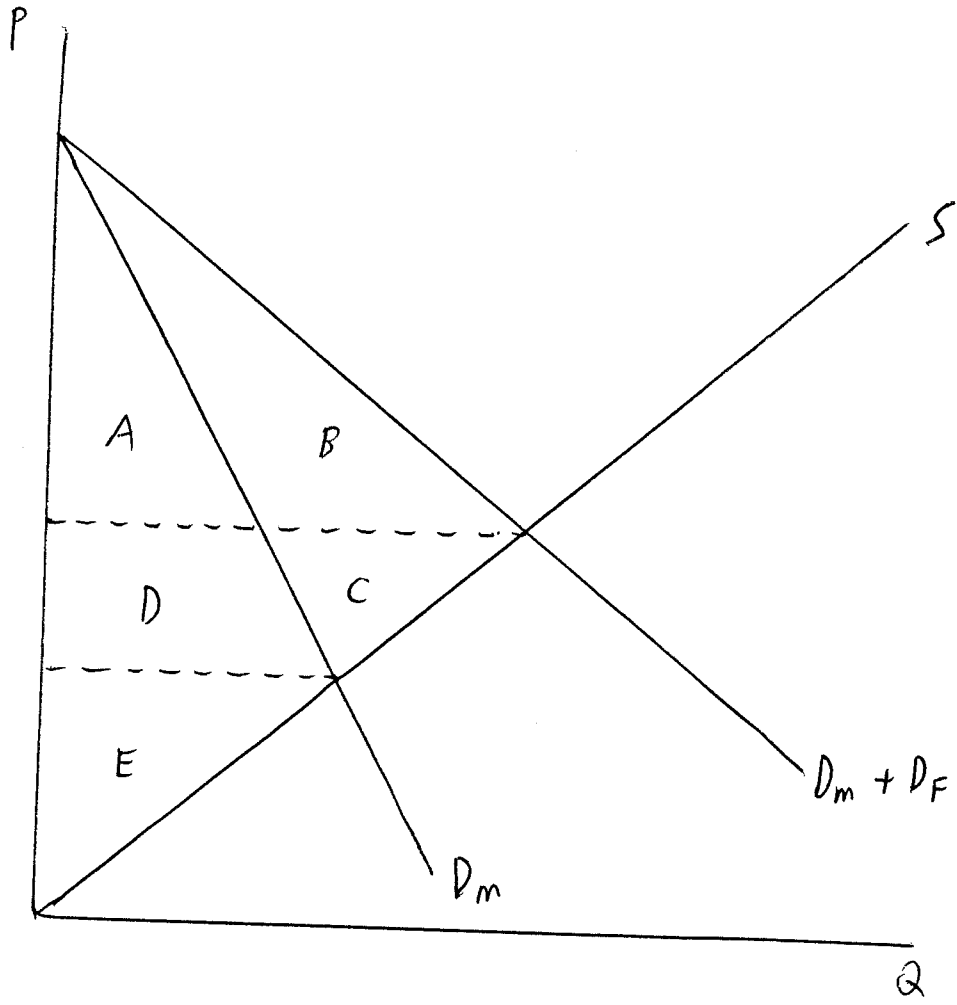


Figure 6

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