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Rent Seeking and the Presence of Existing Distortions

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Abstract

When market distortions already exist, producers may attempt to surpress or encourage the establishment of new distortions in hitherto undistorted markets, and may have a strong incentive to appeal to the language of second best to further their private interests. In these situations, the total amount of resources spent on trying to encourage or discourage intervention in an undistorted market can exceed the *sum* of the partial equilibrium Harberger (1964) "triangle" and Tullock (1967) "rectangle" measures of welfare loss. This paper uses a simple example to illustrate these points.

"A third general set of powers of the state which will be sought by the industry are those which affect substitutes and complements. Crudely put, the butter producers wish to suppress margarine and encourage the production of bread."

- George Stigler, *The Theory of Economic Regulation*, page 6.

1. Introduction

When distortions in markets already exist, producers in these distorted markets may have an incentive to surpress or encourage the establishment of new distortions in hitherto undistorted markets. The incentive for this inter–industry lobbying is often at its strongest when the welfare effects of an existing distortion can, in theory, be "unravelled" by the introduction of a new distortion in another related market. In other words, firms which already enjoy rents may sometimes have a strong incentive to appeal to the language of second best (Lipsey and Lancaster, 1956) to further their private interests. This phenomenon is summarized perfectly by George Stigler's "crude" observation that "butter producers wish to suppress margarine and encourage the production of bread."

This paper illustrates the proposition that in these situations, the total amount of resources spent on trying to encourage or discourage government intervention in an undistorted market can exceed the sum of the partial equilibrium Harberger (1964) "triangle" and Tullock (1967) "rectangle" measures, because the creation of a new distortion can enlarge or reduce the "rectangles" that already exist in distorted markets. In the rent seeking society, there are usually a great many existing economic distortions, and a more complete analysis of rent–seeking behaviour and its costs should pay at least some attention to these costs.

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2. An Example

To focus the analysis, consider a general equilibrium version of the welfare cost of an excise tax, which Tullock (1967) uses in his classic paper to motivate the welfare costs of rent seeking. Consider an economy with constant marginal costs of production and $N > 2$ markets. Consider two of these markets, A and B, and suppose that marginal costs are zero in both of these markets. Suppose the government is considering placing a specific tax in Market B, the revenue from which will be returned to producers in that market. Market A is already subject to a similar distortion of a specific tax of t_A, with producers enjoying a lump-sum transfer of taxation revenue. All other markets are competitive and are not subject to regulation or intervention of any kind.

The situation is illustrated in the diagram below. The initial imposition of the tax in A causes a reduction in consumption in market A (from x_A^0 to x_A^1), and, since the goods are substitutes, causes consumers to demand more of good B at every price (their ordinary demand curve shifts from D_B to D_B' and they increase their consumption of good B from x_B^0 to x_B^1). As a result of t_A, the consumer ends up at the point marked "1" in each market. The tax in A of course has its own welfare costs and rent seeking costs, but we want to focus on the effect of introducing an additional distortion in a separate but related market.

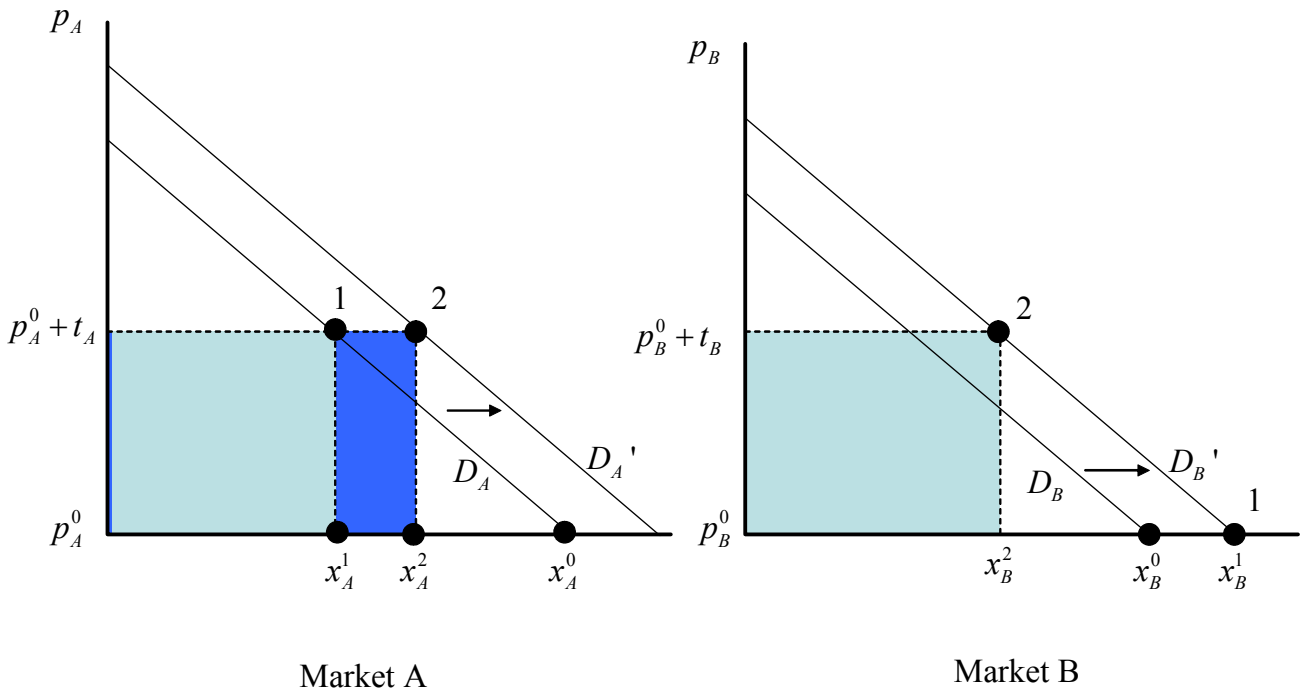

Figure 1: A Tax in Market B With an Existing Tax in Market A; A and B are substitutes.

To this end, consider the imposition of a tax of t_B in market B. The imposition of the tax in B causes a reduction in consumption in market B (from x_B^1 to x_B^2), and, since the goods are substitutes, leads consumers to demand more of good A at every price (they increase their consumption of good A from x_A^1 to x_A^2). As a result of t_B, the consumer ends up at the point marked "2" in each market.

The traditional Harberger measure of the additional excess burden of the tax in market B is the sum of the triangle in market B, *less* the additional revenue collected in Market A. To understand this, note that, according to the theory of second-best, imposing the tax in market B partially "unravels" the existing distortion in market A and may even be welfare enhancing, relative to the initial distorted equilibrium. This will be the case if the additional revenue generated by the rectangle in market A due to the imposition of t_B exceeds the size of the triangle in market B. Indeed, when there are only two goods in the economy, a tax of equal proportions in each market is equivalent to a lump sum tax on the consumer's income and will create no distortion precisely for this reason. As an aside, we note that by the first welfare theorem such combinations of taxes can never Pareto improve on the initial, undistorted competitive equilibrium at the point (x_A^0, x_B^0).

Tullock (1967) argues persuasively that in this setting, at least part of the revenue generated by the tax in market B (and, under some conditions, all of it) should be considered social waste. Producers in market B will use resources to capture the revenues and consumers will presumably use resources to oppose the tax. The devotion of these resources does not generate any additional production or income, and instead merely redistributes income, so they must be considered socially wasteful.

However, there are additional rent-seeking costs which should be taken into account. Because the goods are substitutes and because there is an existing distortion in market A, the distortion in market B creates additional revenue in *both* markets. Since we have assumed that all of the revenue is being returned to producers in these industries, they will, for the same reasons pointed out by Tullock, be willing to use valuable resources to capture it. In this particular case, the producers in market A will lobby in favour of the intervention in market B, precisely because they gain additional revenue from this intervention. Thus, even taking into account Tullock's (1967) critique, the partial equilibrium measure of welfare change of the sum of the triangle and rectangle in market B will underestimate the potential welfare losses than can occur. Producers in both markets will lobby in favor of the intervention.

Thus, assuming that the total amount of taxation revenue generated by t_B is not overdissipated[1], then the measure:

$$\Delta W_B = t_B x_B^2 + \frac{1}{2} t_B \left(x_B^1 - x_B^2 \right) + t_A \left(x_A^2 - x_A^1 \right) \tag{1}$$

is an upper bound for the total welfare change that occurs as a result of intervening in market B. The first term is the usual Tullock rectangle in market B. The second term is the usual Harberger triangle in market B, and the third term is the rectangle in market A. In can be thought of as a "Harberger–Tullock rectangle", because it combines Tullock's (1967) insights about rent-seeking with Harberger's careful accounting of the welfare effects of taxes in a general equilibrium setting when there are existing distortions in other markets. In the theory of second best and the world of conventional welfare economics, the term

[1]Of course, if the rules of the rent-seeking contest or the rent seeking technology are such that over-dissipation of the market B rectangle is possible, then it follows that over-dissipation of the *sum* of the rectangles in markets A and B is also possible, for the very same reasons. In this case, the measure in equation (1) will underestimate the welfare loss from the intervention in market B.

$t_A\left(x_A^2 - x_A^1\right)$ is counted as a gain because it represents revenue that the government would not have otherwise received from the imposition of t_A. In contrast, in the study of the rent–seeking society it must be counted as a potential welfare loss.

The welfare cost of marginally changing t_B in this framework can also be computed. Suppose that there are existing taxes in both markets. The change in the Harberger triangle in market B is:

$$t_B \frac{\partial x_B}{\partial p_B}$$

and the change in revenue[2] in market B is:

$$x_B + t_B \frac{\partial x_B}{\partial p_B}$$

Finally, the change in revenue in market A is:

$$t_A \frac{\partial x_A}{\partial p_B}$$

The term $t_A \frac{\partial x_A}{\partial p_B}$, which captures cross-market price effects, can be positive, negative or zero. If it is negative, then rent-seekers in market A will stand to lose revenue from the marginal tax change in market B, and so would be willing to spend an amount $t_A \frac{\partial x_A}{\partial p_B}$ to stop the change. Thus, it is the absolute value of $t_A \frac{\partial x_A}{\partial p_B}$ which is relevant for placing bounds on the potential size of rent seeking costs. In other words, an upper bound for the welfare cost of a marginal change in t_B is:

$$\frac{\partial W}{\partial t_B} = t_B \frac{\partial x_B}{\partial p_B} + \left\{ x_B + t_B \frac{\partial x_B}{\partial p_B} \right\} + t_A \left| \frac{\partial x_A}{\partial p_B} \right| \tag{2}$$

$$= x_B + 2t_B \frac{\partial x_B}{\partial p_B} + t_A \left| \frac{\partial x_A}{\partial p_B} \right| \tag{3}$$

This is similar to the usual expression derived by Harberger (1971) for the marginal welfare effect of changing the distortion in market B, with the critical differences that in the rent-seeking society the marginal gains (and losses) of revenue in markets B and from increasing t_B could potentially be spent on wasteful projects or, if the revenue is returned to producers, be dissipated away in rent seeking expenditures.

Note that, in constrast to the Harberger approach, the absolute value of cross market effects $\left| \frac{\partial x_A}{\partial p_B} \right|$ must be taken into account, rather than $\frac{\partial x_A}{\partial p_B}$. Also note that, in general, the

[2]We are assuming here that the marginal tax revenue in market B, $x_B + t_B \frac{\partial x_B}{\partial p_B}$ is positive. This means that we are on the inelastic part of the demand curve for good B, or the downward sloping part of the Laffer curve for t_B. If this was not the case, then an increase in t_B would reduce revenue in market B, and producers in market B would lobby in favour of tax reductions, rather than tax increases.

sequence of interventions will matter for the estimation of such costs, unless $\frac{\partial x_A}{\partial p_B} = \frac{\partial x_B}{\partial p_A}$. With ordinary demand curves this will not be the case, unless $\frac{\partial x_A}{\partial m} = \frac{\partial x_B}{\partial m} = 0$ so that the ordinary demand curves correspond with the compensated demand curves (i.e.there are no income effects on goods A and B). Indeed, under the right conditions, if the producers in B are sufficiently farsighted, they may lobby for an intervention in market A *before* the intervention takes place in market B so as to maximize their revenue further down the track.

3. Does the Degree of Substitutability Matter?

In the above example we assumed that the goods were substitutes. But the analysis works just as well if the goods are assumed to be complements. This is illustrated in the diagram below.

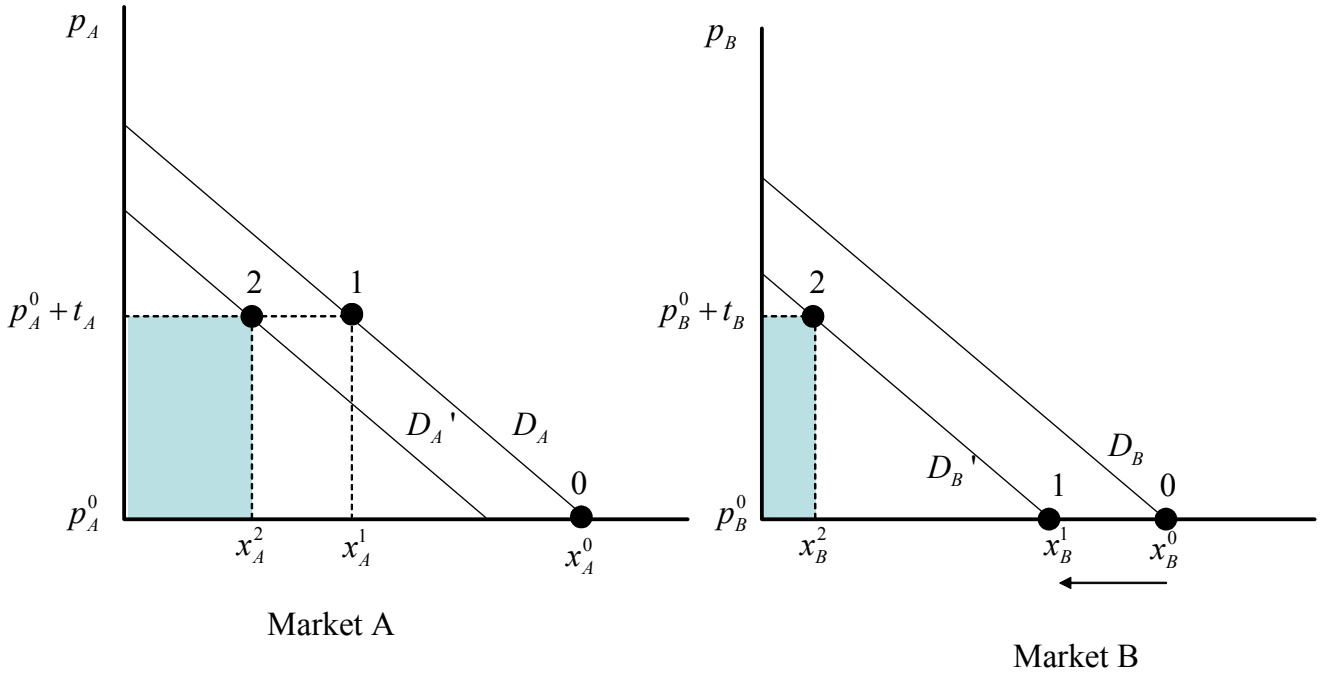

Figure 2: A Tax in Market B With an Existing Tax in Market A - A and B are complements.

The imposition of the tax in A again causes a reduction in consumption in market A (from x_A^0 to x_A^1), and, since the goods are complements, causes consumers to demand less of good B at every price (their demand curve shifts left from D_B to D_B' and they reduce their consumption of good B from x_B^0 to x_B^1). Again, the tax in A of course has its own welfare costs and rent seeking costs, but we want to focus on the effect of introducing an additional distortion in a separate but related market. To this end, consider the imposition of a tax of t_B in market B. The imposition of the tax in B causes a further reduction in consumption in market B (from x_B^1 to x_B^2), and, since the goods are complements, causes consumers to demand less of good A at every price (they reduce their consumption of good A from x_A^1 to x_A^2).

Thus, when A and B are gross complements, the introduction of the tax in market B *reduces* the revenue generated in market A. Such a tax can never be welfare enhancing in the second-best sense because the new distortion only "reinforces" the initial distortion instead of "unravelling" it. Producers in market B will support the change for the same reasons as before (since the imposition of t_B still generates revenue in that market), but producers in market A will oppose the change because revenue in market A declines.

However, it is again the case that the partial equilibrium measure of the welfare cost of the intervention in market B could exceed the sum of the usual Harberger costs and Tullock costs, precisely because producers in A stand to *lose* part of the tax revenue which was available to them before the tax in market B was imposed. They will again have an economic interest at stake in this intervention, but in this case will devote resources in an effort to *prevent* the change taking place. In other words, butter producers wish to suppress margarine and encourage the production of bread.

More generally, suppose there are N markets, $N-1$ of which are already distorted in the way described above. Consider the welfare cost of introducing a distortion in the Nth market. Let $x_N^{initial}$ and x_N^{final} be the consumption of good N before and after the intervention, respectively. Then the above considerations lead to a measure of:

$$\Delta W = t_N x_N^{final} + \frac{1}{2} t_N \left(x_N^{initial} - x_N^{final} \right) + \sum_{i=1}^{N-1} t_i \left| \Delta x_i \right| \tag{4}$$

This is simply the usual Tullock rectangle in market N, plus the usual Harberger triangle in market N, plus the *absolute* magnitude of the cross effects generated in other markets. In traditional welfare economics, these terms may be positive or negative depending on whether good N is a substitute or complement for the other $N-1$ goods. But in our analysis these terms represent potential revenue gains or losses to rent-seekers, who will use resources to try to either capture such revenue streams or avoid losing them. Therefore, in the rent seeking society they represent potential welfare losses.

For marginal changes, we simply have a generalisation of equation (2):

$$\frac{\partial W}{\partial t_N} = x_N + 2 t_N \frac{\partial x_N}{\partial p_N} + \sum_{i=1}^{N-1} t_i \left| \frac{\partial x_i}{\partial p_N} \right|$$

It is clear from the analysis that the only case where these considerations are irrelevant are when the goods are neither substitutes or complements. In that case, the welfare loss of introducing the tax in the undistorted market is equal to its partial equilibrium measure, and accounting for rectangle changes in other markets simply amounts to counting zeros. Thus, for the purposes of our analysis, substitutability and complementarity matter if and only they are non–trivial in the usual economic sense.

4. Concluding Remarks

This paper has argued that the welfare costs of interventions can in some cases exceed the sum of the usual partial equilibrium measures developed by Harberger and Tullock. We

have only used the simplest and most straightforward types of interventions to illustrate our main point. Accounting for the effects of other kinds of interventions such as price and wage controls, production quotas and so on is an interesting but more challenging exercise, because new interventions and distortions of this type often interact with existing distortions in an unpredictable fashion. Thus, when trying to account for the possible incentives for establishing new distortions in already-distorted economies, it would seem that the most analytically convenient course of action would be to follow the advice of Harberger (1971) and only pay attention to those markets which (a) have economically significant existing distortions and (b) interact with the market under consideration in an economically significant way. If such considerations are taken into account, a more complete theory of rent-seeking behaviour and its costs will be possible.

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