

IEDR Library
UNIVERSITY OF THE PHILIPPINES
SCHOOL OF ECONOMICS LIBRARY
DELMAN, Q. C.
C1

Institute of Economic Development and Research
SCHOOL OF ECONOMICS
University of the Philippines

Discussion Paper No. 68-9

March 20, 1968

KAMERSCHEN AND TULLOCK ON THE WELFARE

LOSS TO MONOPOLY

by

Dean A. ^{many} Worcester, Jr.

NOTE: IEDR Discussion Papers are preliminary versions circulated privately to elicit critical comment. References in publications to Discussion Papers should be cleared with the author.

UPEDP 197
12-24-68

KAMERSCHEN AND TULLOCK ON WELFARE LOSS TO MONOPOLY

In recent issues of this Journal David R. Kamerschen⁽¹⁾ and Gordon Tullock⁽²⁾ have reexamined the theory and measurement of welfare loss due to "monopoly" in the American economy. They find that such losses are much larger than estimated by Harberger⁽³⁾ and Schartzman.⁽⁴⁾ Kamerschen makes new estimates using more recent, less aggregated data which yield substantially higher estimates of welfare loss, but his most interesting innovation, one which accounts for the lion's share of the increase is the use of a "Lerner" estimate of elasticity of demand of an industry by industry basis to replace the arbitrary assumption of -1.0 by Harberger and -2.0 by Schwartzman. Tullock makes no estimates, asserting that the principal losses are of a type not susceptible to measurement, but challenges the relevance of Harberger's "welfare triangle" analysis illustrating his argument with analogies to taxation, international trade and theft. This note is restricted to comment on the relevance of his analysis to the misallocations attributable to monopoly and to a demonstration that the Lerner index can easily overstate the amount of welfare loss. A brief final section points out how analysis of this type also provides us with an estimate of the amount of income that is redistributed as a result of monopoly.

I.

The Lerner-Kamerschen Estimate of Elasticity

Kamerschen's use of less aggregated data is commendable and it is to be hoped that he will find ways to continue his work with data more closely related to products which are true substitutes on the market. The more closely he approaches this ideal, however, the more questionable will be the use of the Lerner-Kamerschen index of elasticity.

When Lerner advanced his well-known index of monopoly power in 1934⁽⁵⁾ it was acclaimed partly because it did not stand on the assumption of profit maximization. Instead of making monopoly power rest solely on the elasticity of demand, thus asserting the overriding importance of the difference between marginal revenue and price, Lerner relates monopoly power to the difference between marginal cost and price. Thus the amount of monopoly power exercised was isolated whether or not firms maximized profits. It also provided a less complicated method of getting at monopoly power since marginal costs appear to be somewhat easier to estimate than elasticities, or, what amounts to the same thing, marginal revenues (if we may assume that estimates of prices are "good").

Unfortunately, the virtue of the Lerner index of monopoly power becomes a vice when it is turned around to estimate the elasticities of demand. Obviously, it can give the correct estimate only when marginal cost is equal to marginal revenue for the decision-making unit. In other cases the estimate will generally be too large. What is worse, it can grossly over-estimate the appropriate demand elasticity when the decision making units do equate marginal costs and revenues, if disaggregated, especially firm data, are used. This does not mean that the Kamerschen-Lerner index should not be used, but its use will require considerable caution, and it will have to be regarded as giving an exaggerated estimate except, possibly, in some extraordinary cases.

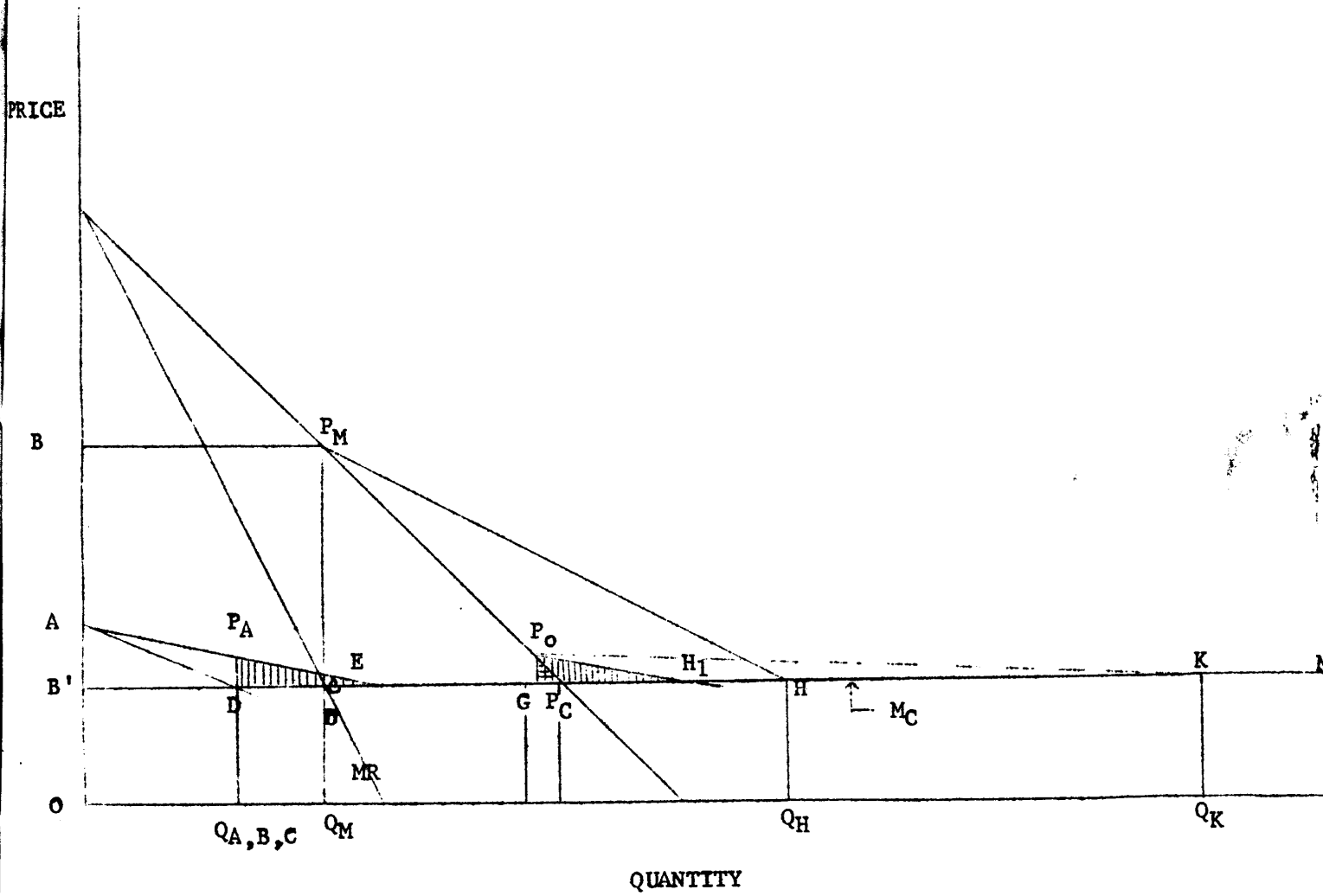
Consider Figure 1. Several cases are illustrated but attention is drawn first to the straight line industry demand curve its marginal revenue curve and the flat industry marginal cost curve all of which, for convenience, are assumed to remain fixed throughout our analysis. There are no economies or diseconomies of scale, so the marginal cost curve is relevant for any number of firms.

When Lerner advanced his well-known index of monopoly power in 1934⁽⁵⁾ it was acclaimed partly because it did not stand on the assumption of profit maximization. Instead of making monopoly power rest solely on the elasticity of demand, thus asserting the overriding importance of the difference between marginal revenue and price, Lerner relates monopoly power to the difference between marginal cost and price. Thus the amount of monopoly power exercised was isolated whether or not firms maximized profits. It also provided a less complicated method of getting at monopoly power since marginal costs appear to be somewhat easier to estimate than elasticities, or, what amounts to the same thing, marginal revenues (if we may assume that estimates of prices are "good").

Unfortunately, the virtue of the Lerner index of monopoly power becomes a vice when it is turned around to estimate the elasticities of demand. Obviously, it can give the correct estimate only when marginal cost is equal to marginal revenue for the decision-making unit. In other cases the estimate will generally be too large. What is worse, it can grossly over-estimate the appropriate demand elasticity when the decision making units do equate marginal costs and revenues, if disaggregated, especially firm data, are used. This does not mean that the Kamerschen-Lerner index should not be used, but its use will require considerable caution, and it will have to be regarded as giving an exaggerated estimate except, possibly, in some extraordinary cases.

Consider Figure 1. Several cases are illustrated but attention is drawn first to the straight line industry demand curve its marginal revenue curve and the flat industry marginal cost curve all of which, for convenience, are assumed to remain fixed throughout our analysis. There are no economies or diseconomies of scale, so the marginal cost curve is relevant for any number of firms.

Figure 1*



*The Lerner estimate of elasticity is equal to $\frac{\text{Price}}{\text{Price} - \text{Marginal Cost}}$

A textbook monopolist will sell quantity Q_M at P_M if he is secured against entry. Normally, one would say that the welfare loss is shown by the triangle $P_M P_C C$, but if Harberger's assumed elasticity of -1.0 were applied the larger triangle $P_M H C$ is relevant since that makes the area showing the value of mis-allocated resources, CHQ_M , equal to the value of monopoly profits, $BP_M CB'$. The Lerner-Kamerschen elasticity of -1.5 would make the estimated welfare loss larger still. Neither of these estimates need be objected to on this ground, however, since there is no obvious reason to prefer a straight line demand curve to one of constant elasticity. The estimate errs in the other direction when the true elasticity rises as price falls.

But the monopolist may fear entry, or be regulated, so that he prices at P_0 in spite of the fact that marginal revenue is far below zero at that point. The true elasticity of demand is -0.2 and the welfare loss is the small heavily shaded triangle $P_0 G P_C$. The Harberger estimate of elasticity is -1.0 and the welfare loss computed on this assumption is five times the true loss and is shown by the area $P_0 H_1 G$ since the true elasticity is lower than -1.0 . But the Lerner-Kamerschen index is five times the Harberger estimate! Although this example can be regarded as extreme, it is clear that when a firm carries production beyond the profit maximizing point marginal cost is greater than marginal revenue, possibly very much greater, with the result that use of the Lerner-Kamerschen index may greatly overstate the amount of resources misallocated and the size of the welfare loss.

The same tendency arises even when firms maximize their profits if they are in competition with other firms (actual or potential) so that each firm's demand curve has a higher elasticity than does the industry curve. For example, suppose three firms share the market illustrated by Figure 1 and that once cross-elasticities of demand are considered each firm sees its demand as

AP_AE . Each firm would, if it maximizes under these constraints, produce $Q_{A,B,C}$ at price P_A . Each firm does have an elasticity of -5.0, so the welfare loss appears to be shown by the area P_ADE for each of the three firms, i.e. the social loss is three times the size of that area. But it is clear that the true welfare loss is, as before, the heavily shaded small triangle P_0P_CG .

Although the discrepancy is larger in this case because the industry demand curve is inelastic, it is probable that the demand curve for any firm will be more elastic than that of the industry of which it is a part. Hence, there is a tendency for the Lerner-Kamerschen index to over-estimate the welfare loss except where there is reason to believe that the firms in fact perfectly match prices in both directions.

This phenomena can be expected to carry over to the elasticities of ^{the} perfect substitutes, thus making ^{the} industry demand curve of any particular luxury or necessity rather more elastic than the marginal utility schedule for the particular good.

II.

Tullock on the Incentive to Misallocate

Tullock takes a radically different tack in his attempt to show that estimates of the welfare loss to monopoly are too low by a large, but indefinite amount. His principal concern is that the monopoly profit is a strong incentive to use resources to monopolize on one hand and to resist similarly ambitious people in business and government on the other. The possibility of winning a monopoly gain of only P_0G for an output of OQ_0 in Figure 1 may lead entrepreneurs to expend many valuable resources, no telling how much.

Just as I am in agreement with Kamerschen's effort to compute and utilize the correct industry-by-industry elasticities of demand, so I am in basic

agreement with Tullock in this observation. One should ask, nevertheless, how the greedy entrepreneurs are constrained to go about attempting to monopolize before it is possible to accept the analogy between such potential profits and theft, taxation in order to build tunnels to nowhere, and barriers to trade imposed for no economic purpose. No doubt monopolies arise because of bribery of corrupt officials, Mafia-type strong arm tactics and successful campaigns to hoodwink the public and legislators into serving the private interest of some groups at a loss to the general public. I quite agree that eternal vigilance and the promotion of institutional arrangements that keep economic intervention into the economy at minimum effective levels is desirable, although I do not know just where those levels lie.

But how do firms typically strive for monopoly? How do they typically use resources to "muscle in" to a monopolized segment of the economy? Resources devoted to activities that yield "patents, trademarks, franchises, good will and royalties" all items attributed to monopoly profits by Kamerschen, provide a starting point. He also includes advertising in one estimate. Among these are the costs of product innovation and development, process innovation and development, such costs, presumably, being less than the value of the gains counted. The amount of profits going to the monopolist are a small proportion of this total, and his incentive must be regarded as the profits that remain after the costs of the above, including the advertising (some of which is informational, and unavoidable in a world where perfect information is not free). So the incentive to misallocate is a small part of the "area to the left of the welfare triangle", and some of the rest of that area involve the socially desirable costs necessary for innovation, adaptation of resources of changing conditions and are, therefore, not wasted. Some are

wasted and part of that area should be added to the area beneath the welfare triangle to get a more accurate estimate of the misallocation of resources (if one may assume that the rest of the world is competitive).

The important thing to do, of course, is to find alternative institutional arrangements that will devote less resources to such activities than do firms under present conditions.

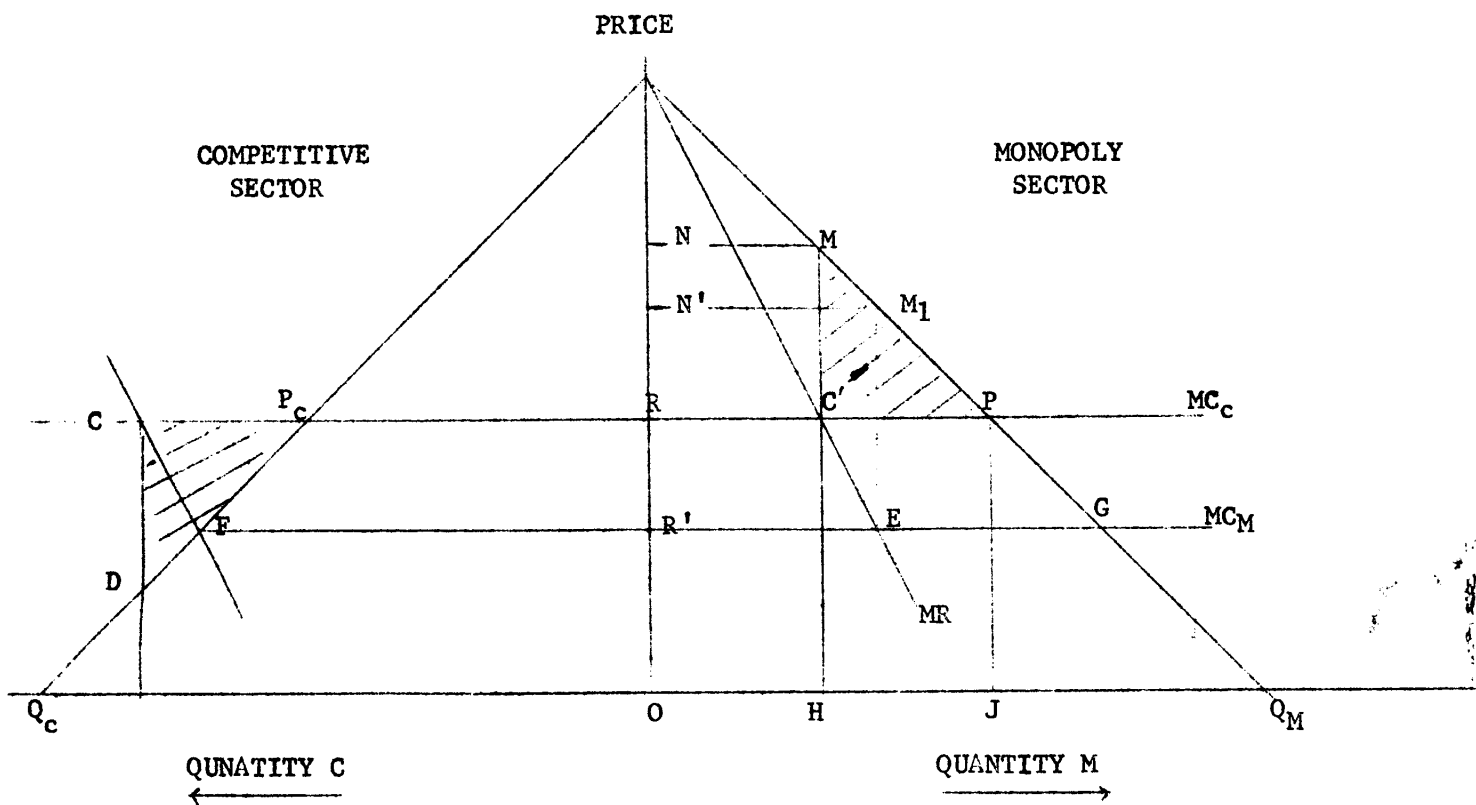
III.

Monopoly and Income Distribution

I do not recall having seen any discussion of the relation of the welfare cost of monopoly to what might be called the misdistribution of income. Clearly, the area to the left of the welfare triangle approximates the gross monopoly gain. If all of gross monopoly gain were misdistribution it would be an underestimate of misdistribution, however, because if total real income is to remain the same, wages and marginal cost must fall somewhat as the monopolists' incomes rise and the construction used thus far holds marginal cost at the same level.

The correct effects can be shown with a very simple two-sector general equilibrium model shown as Figure 2. Sector C is competitive, Sector M is monopolized. Q_c is measured leftward from the origin, and Q_m rightward. There is a fixed labor force and constant productivity in each sector so that the total output is given by the length of the lines $PP_c = EF$ or any other horizontal line between the industry marginal revenue and CF . The proximate welfare loss and income misdistribution are given, respectively, by the two shaded welfare triangles $MC'P$ plus CP_cD , and the rectangle $NMC'R$. But this assumes that price may be greater than marginal cost in the competitive sector. As non-monopoly incomes fall relative to prices full employment

Figure 2



equilibrium points RF are established. As compared to the proximate position the welfare loss, M_1EG , is somewhat reduced, the amount of resources transferred to the competitive sector is reduced by about 40% and the misdistribution of income increased to about 70% above the proximate level.

This example greatly exaggerates the size of the misdistribution of income involved if one accepts the arguments advanced in Section I above. For it is evident that the higher the elasticity the smaller will be the monetary value of the income misdistribution as compared to the monetary value of the resource misallocation. It is also true that the higher the elasticity of the firms' demand curves, the flatter the marginal revenue curves, the greater the transfer of resources required and the smaller the misdistribution effects.

Only one point remains to be made, or rather repeated. What has just been called a misdistribution of income is used largely to hire the innovators, differentiators, salesmen, and others who attempt to ^{find} found and defend what Tullock regards as monopoly positions. These people earn wages and salaries like other employees, and do not contribute much if at all to the dispersion of personal income distribution which is generally considered, even by many economists, to be the appropriate test of unequal income distribution.

But the welfare loss may be substantial, although hidden, for the reasons advanced by Tullock. Suppose, for example, that the monopolist of Figure 2 were to use all of his profits to employ advertisers, lawyers, lobbyists and goons who do nothing other than defend his monopoly position. In the present instance the monopoly profit at the proximate equilibrium, $NMC'R$ is somewhat less than the value of the resources to be transferred from the initial position, $C'PJH$ but most of the resources are transferred to these activities. Some downward pressure on factor incomes remain to be absorbed in a new general

equilibrium position, part of which will be devoted to additional defense of the monopoly position as factor prices fall.

The distribution of income between monopolists and workers is not changed by all of this, since the monopolist ~~spends~~ all of his profits to defend his position. Resources are reallocated in such a way, however, as to reduce welfare. At the proximate equilibrium position described above, the welfare loss is shown by the trapezoid MPJH, since output is reduced in the monopoly sector and not increased in the competitive sector. Curiously, the less the misdistribution of income between profits and wages the greater the misallocation of resources.

I have argued elsewhere⁽⁶⁾ that modern welfare economics is not well suited to treat misallocation of this type in the most common modern case of product competition, differentiation and innovation. It is difficult in principle to distinguish an intelligently defended monopoly position from competitive behavior that makes a positive contribution to welfare just because most of the costs of this type such as advertising, product development, and the like do create differences for which some consumers seem to be willing to pay in an open market which contains many substitutes. But that is another story.

REFERENCES

1. David R. Kamerschen, "An Estimation of the "Welfare Losses" from Monopoly in the American Economy," Western Economic Journal (IV) Summer, 1966.
2. Gordon Tullock, "The Welfare Costs of Tariffs, Monopolies and Theft," Western Economic Journal (5), June, 1967.
3. Arnold C. Harberger, "Monopoly and Resource Allocation," American Economic Review, (XLIV), May, 1954.

4. David Schwarzman, "The Burden of Monopoly," Journal of Political Economy, (XLVIII), December, 1960.
5. Abba P. Lerner, "The Concept of Monopoly and the Measurement of Monopoly Power," Review of Economic Studies, (I), 1934.
6. Dean A. Worcester, Jr. Monopoly, Big Business and Welfare in Postwar United States, Seattle, University of Washington Press, 1967, Chapters 2, 9.