Reprinted for private circulation from
The Journal of Political Economy, Vol. XLVII, No. 2, April, 1939
PRINTED IN THE U.S.A.

*Compliments of the Author*

HARRY GUNNISON BROWN

# THE INCIDENCE OF A GENERAL OUTPUT OR A GENERAL SALES TAX

HARRY GUNNISON BROWN
University of Missouri

IT IS generally recognized by students of taxation that a tax on the output of a particular commodity raises the price of such a commodity by decreasing its supply. But what if there is a tax on the production of all commodities and services—an equal proportionate tax on all lines of production? Will such a tax raise prices? Clearly it cannot make any particular kind of commodity, such as cigarettes, relatively scarce by driving producers of it into other lines, for other lines of production are then equally taxed, and there is no advantage in leaving one taxed line for another line which is taxed to the same extent. Where, then, does the burden of the tax rest?

A good many persons too readily conclude that such a general tax must raise all prices. But there are important considerations which such persons overlook. Such a general tax cannot reduce the output of goods unless workers are willing to remain idle—for there is no untaxed line to go into—or unless owners of capital or land are willing to let their capital or land lie idle and to receive no income at all from it. Surely, most men would, in time, accept wages very considerably lower rather than be chronically idle, and most owners of capital would rather have very greatly reduced returns on their capital rather than let their capital depreciate unused and get no returns at all. Similarly, landowners—other than vacant-land speculators (and we need hardly conclude that a general output tax, apart from any incident reduction in land-value taxes, would increase the number of these)—would presumably rather receive lower rent than no rent.[1] We cannot expect, therefore, that a general tax on output would cause permanent cessation of production or that it would, as a long-run phenomenon, bring any appreciable decrease. Why suppose, then, that it could, in the long run, make prices higher?

[1] Of course vacant-land speculators, like other human beings, commonly prefer something to nothing. The circumstances which nevertheless make them hold their land unused, for a time receiving no rent, are set forth, at least partially, in my book on *The Economic Basis of Tax Reform* (Columbia, Mo.: Lucas Bros., 1932), pp. 268–74.

An increase in the volume of circulating medium, whether it be through the issue of additional money or an expansion of bank credit, tends definitely toward a higher range of prices. But there is certainly no obvious connection between a general tax on the output of goods and an increase of the volume of circulating medium. There is, therefore, no basis in monetary theory for supposing that a general tax on all goods will make average prices permanently higher. To raise the general level of prices there must be either a decrease of supply of goods in general or an increase of demand (as through an increased volume of money). If a tax on the output of all goods neither decreases supply nor increases demand, on what basis is it to be argued that such a tax will raise prices?

If a tax on all goods does not raise prices, it must lower the money incomes of (the number of dollars received by) workers, capitalists, and landowners. We shall begin with the workers. Here, let us say, is a coal-mine worker who is able to add to the output of a given mine one ton of coal a day. The coal is worth, at the mine mouth, $2.00 a ton. At a wage of $2.00 a day, this worker is barely worth hiring. Now, suppose there is an output tax of 10 per cent. When the coal is produced and sold, 20 cents must be paid as a tax to the government. That leaves only $1.80. The coal-mine worker whose labor adds this ton to the total output is no longer worth a maximum of $2.00 to the employing company but only a maximum of $1.80. For, if the company can sell this coal for no more than $2.00 and must pay 20 cents of this to the government, the ton of coal is worth, to the company, not over $1.80, and it cannot afford to hire the mine worker at any greater wage than $1.80. So far as the community is concerned, the worker's marginal productivity is $2.00. But, since the government takes 10 per cent of this, his marginal productivity is, to the employing company, only $1.80. If he wants to work, he cannot expect greater wages than his work is worth to the employing company. Nor, as we have seen, can the price of coal be permanently raised, for a similar tax is applied in every other industry and there is consequently no escape from the tax by changing to some other line. Thus, such a tax on the output of all commodities and services necessarily reduces wages.

Let us follow out one more illustration. A farm worker adds to the output of wheat 400 bushels a year. This is a "marginal" addition, what the worker can do on no-rent land or as the "final" worker hired on a piece of high-grade land (intensive margin). At a price of $1.00

per bushel, this comes to $400. But if government, by an output tax, takes $40 of the price, the farm worker cannot possibly be worth, to an employer (or to himself, if he is self-employed), $400, but only $360. If the 10 per cent tax is levied at each stage of production and there are several stages (e.g., wheat, flour, bread, retail distribution), we must, to avoid having duplication of taxation, levy the tax at each stage only on the addition of value made to the product at that stage. Or the tax might be levied at the very last stage (retail sales), in which case it will be reflected back through the various stages to the recipients of the various kinds of income, as will be shown, with due qualification, in succeeding paragraphs.

Such a tax on all output will reduce the income of the capitalist and of the landowner in the same proportion that it reduces the income of the worker,[2] but not in any greater proportion. And since wages are a much larger part of the total product of industry than is either interest on capital or rent of land, a general output tax takes more from the wages of labor than it takes from interest or rent.

Let us now see just how a general output tax reduces the return received by owners of capital. Suppose that a farmer believes that an investment of $1,000 in fertilizing or otherwise improving his farm will add to the output which his labor can bring, every year, by some sixty bushels or $60 (in excess of an allowance for depreciation). He could then afford to pay not over $60 annual interest, or 6 per cent, for a $1,000 loan. But if a general output tax takes $6.00 of the $60, the improvement adds only $54 to that value of the output which the farmer will have after paying the tax, and he would be losing money to pay more than 5.4 per cent interest. Were the lender himself to invest his savings in producton under his own direction, the tax would take an equal per cent of the output; hence, he might as well lend to someone else for a lower rate than before. And necessarily, under these conditions, the demand for loans will decline until lenders are receiving 10 per cent lower interest than previously, just as wage-earners must receive 10 per cent lower wages than before. (The part of the output required to offset capital depreciation is, of course, "imputable" to the labor and other factors used in constructing the capital, and the proportionate tax on that part of the output is shifted back upon these factors.)

It is the same in regard to the rent of land. Suppose, for example, that a coal-mine operator could afford to pay $10,000 a year, as royalty,

[2] See my book, *The Economic Basis of Tax Reform* (Columbia, Mo.: Lucas Bros., 1932), pp. 128–29.

for permission to exploit a given coal mine, the coal being worth \$2.00 a ton. Is it not obvious that, if the coal output is taxed 10 per cent, so that the operator receives, in effect, only \$1.80 per ton, he cannot afford to pay as high a royalty? And is it not also clear that, since no other would-be operator can afford to pay as high a royalty as before, the possible competition of operators will be reduced and royalties must fall?

Or let us suppose the case of a farmer who has too little land to employ his labor most effectively. By hiring a neighboring piece of land he can, we may suppose, add fifty bushels a year to his output of wheat, without working any harder or longer than before. Obviously, he could afford to pay not over fifty bushels a year as rent for the use of this extra piece of land, or, with wheat at \$1.00 a bushel, not over \$50. But if an output tax takes \$5.00 of the \$50, he cannot afford to pay over \$45. Clearly, the net rent received by the landowner must be reduced.

If, then, there is a general tax on output, the money incomes received by laborers, capitalists, and landowners must all be reduced. Since, of the prices paid for goods, a part (in our illustration 10 per cent) is taken by government, only the remainder can go as wages, interest, and rent for the factors of production. The incidence of a general output tax is, then, in practical effect, the same as if it raised all prices (as most of the public seems to suppose it does) without either decreasing or increasing money incomes. For in either case there is a subtraction, proportioned to the tax, from the real incomes of wage receivers, interest receivers, and recipients of land rent. Whether commodity prices remain the same and money incomes fall or commodity prices rise and money incomes remain unchanged, the distribution of the tax burden would appear to be identical.

A general tax on output will easily commend itself to those persons who believe that taxes should rest on everybody in about equal proportion to their respective incomes or spendings, however small these may be, and *with no distinction as to sources* of income or as to kinds of property owned.[3]

The general output tax with which a majority of us are now most familiar is the general retail sales tax. In the American states where this tax has been adopted, it does not really apply to all retail transac-

[3] The reasons why I cannot subscribe to any such belief but consider it essential to distinguish between sources of income and, therefore, between kinds of property, I have set forth at length in *The Economic Basis of Tax Reform* (Columbia, Mo.: Lucas Bros., 1932).

tions. There are various exceptions to its generality, depending on the jurisdiction, e.g., newspapers, haircuts, laundry and cleaning service, shelter, foods. But in many of the states, retail food sales are taxed the same as any other sales. In so far as the retail sales tax, as above indicated, is not all-inclusive, but bears on some lines of production and exempts others, it tends to make some prices higher than others. But since this tax, in several of the states, is so nearly a general tax, we shall, for purposes of the present analysis, assume it to apply in all lines equally.

Nevertheless, no purely retail sales tax which is not at the same time ubiquitous can apply to the entire output of goods even in a single county or state (or country), if those who live within the given territory are engaged in trade with outsiders. And, therefore, a retail sales tax, levied on all retail sales in a given state but not levied ubiquitously, will raise retail prices in that state.

Let us consider, for example, the 3 per cent general retail sales tax in Michigan, assuming, for the present, no sales taxes in surrounding states. This means that goods on which a 3 per cent retail sales tax will be levied, if they are sold to Michigan consumers, can escape the tax if they are exported to other states. If the tax applied equally on exported goods, then the factors of production, labor, capital, and land, would have to accept lower money incomes. The money returns for wages, interest, and rent would be appreciably reduced. But since exported goods escape the tax, this result does not follow. Producers of goods face no tax—even on retailers whose demand for their goods might thus be reduced—if they ship their goods outside of the state. And they will obviously accept no lower net prices from dealers inside the state than from dealers outside. Retailers in Michigan must pay approximately as high prices for Michigan produced goods which have a ready out-of-state market as if there were no Michigan retail sales tax. And since the returns to labor, capital, and land used in retailing can hardly be kept at a permanently lower level in relation to returns in wholesaling, manufacturing, etc., than before, the prices paid for goods by Michigan consumers must presumably rise.

But can we have, in Michigan, wages, interest, and rent as high as before, producers' prices as high as before, wholesale prices as high as before, retail prices actually higher than before, and a sales tax going to the state government, while the volume of circulating medium in Michigan has not increased? The answer is that the volume of circulating medium in Michigan, under the assumed conditions, will increase. For, since the tax applies on sales in Michigan and not on have more to spend. The average of manufacturers' and other producers' prices, wholesale prices, and retail prices remains unchanged, but manufacturers' and other producers' and wholesale prices are lower ~~while retail prices~~ are higher.

If the tax were levied at some earlier stage in production, instead of on retail sales, then we could speak of the "wedge" as being driven between prices at this earlier stage, the prices preceding this stage being lowered and those succeeding it being raised. But the average of all commodity prices would still not be affected.[4]

If a tax were levied at each stage of production, but only at a proportionate rate on the value added at that stage, then no commodity prices, whether producers' prices, wholesale dealers' prices, or retail prices, would be changed at all; but all money incomes received by individuals—wages, interest, and rent—would be lowered; and the money income received by the government for collective spending would be raised by an equivalent amount.[5] (This is on the assumption that this tax is not a substitute for other previously levied taxes but is

[4] If the tax is thus levied at an earlier stage, i.e., the "wedge" driven at an earlier stage, fewer prices are, of course, reduced by the tax and more prices are raised by it. Therefore, if the average commodity price level is to be the same, those relatively few prices which are reduced must be reduced to a greater degree, and the larger number which are raised must be only slightly raised. Perhaps one way of putting the matter—though I suspect it is a way that to most persons will be more confusing than illuminating—is to say that when the "wedge" is driven at an earlier stage, the "tax addition" (if we may so speak) to the price which the buyer at retail pays must also be paid by the retailer to the wholesaler, and so on, to the point of government collection. In a sense we may then say that the tax money paid by purchasers at retail goes through several hands on its way to government and that, therefore, this tax money is, during the period of such passing, prevented from acting on "net" prices (in the sense of prices minus tax) as quickly as if it did not pass through so many stages. Thus, "net" commodity prices (in this special sense of prices minus tax) will average lower than if the tax were collected at the point of retail sale. This was probably (or so I hope!) one of the ideas I had vaguely in mind in writing "Some Frequently Neglected Factors in the Incidence of Taxation" (*Journal of Political Economy*, Vol. XXVIII, No. 6 [June, 1920]), although enough in that article is definitely fallacious so that I am sure I could not then have really thought the problem through or fully understood it. But the essential point I am trying to stress now is that average prices (counting producers', wholesale, and retail prices) actually charged in the markets are not made either higher or lower by output or sales taxes, and that the average is, therefore, the same regardless of where the "wedge" is driven. And I want to take this opportunity to disavow anything in the earlier article here referred to which is inconsistent with the present treatment.

[5] Of course, less individual spending and more collective spending might change the relative demands for and marginal cost of various kinds of goods and so have some effect on their relative prices.

to provide new revenue.) Such a tax really would be a "proportional" income tax "collected at source" and having "no exemptions."

Returning, now, to the general fact that retail sales taxes levied in one state, or only a few states, make retail prices higher by the amount of the tax than in areas where such a tax is not levied, we may take note of a qualification hitherto not commented on. Persons living in a state where a retail sales tax is levied, but near the borders of a state or states where there is no such tax, may do a considerable amount of shopping in such a near-by state or states. Conceivably, some retail establishments in towns near the borders of a state levying no sales tax could keep down their prices a bit, to avoid losing trade, perhaps paying less to some employees who would nevertheless continue to clerk for them because of immobility and lack of acceptable alternatives, and less as rentals for stores and sites having no equally good alternative use. But it is doubtful if this would occur to any noticeable extent, and the probability is that only those consumers would avoid the tax in any appreciable degree who really did shop beyond the state borders. Some would avoid the tax, too, who purchased of mail-order houses outside the state, since such purchases would be interstate and, as such, by the federal Constitution, not subject to the tax. State retail taxes of, say, 10 or 15 per cent would probably result, therefore, in a great loss of business to local retail firms and a tremendous increase in the sales of mail-order houses, and would presumably be, just for that reason, politically impossible. (If nevertheless levied, the increase of retail purchases outside the state would, of course, increase the volume of exports, from the state, of goods produced within its borders.)

In most of the previous discussion we have been assuming absence of friction and, therefore, immediate adjustment of relative prices (including incomes) to the tax levy. Especially has no attention been paid to the theory of "sticky" prices, e.g., "sticky" wages and rentals. But when attention is paid to this theory, it is seen that the rapid and general introduction of sales taxes, though perhaps brought about, in part, by certain consequences and ideologies resulting from depression, itself tends to produce depression.

We have seen that a general and ubiquitous sales tax cannot, as a normal, long-run proposition, increase the general level of commodity prices. But now we may note that any general attempt to increase commodity prices when there is no increase in purchasing power must tend to a decrease of sales and to dull business.

But if commodity prices are not increased, then, as we have seen, money wages, interest, and rent must fall. And if these (wages, interest, and rent) are "sticky" and so cannot be quickly adjusted, then there must obviously ensue a period of unemployment and generally dull business. The rapid introduction of sales taxes certainly tends to bring business depression and, if depression already exists, the introduction of such taxes must, it would seem, tend to retard recovery and to make the depression worse. (In a similar way, if wages are "sticky," the rapid introduction and increase of pay-roll taxes to provide for unemployment insurance and old age benefits must operate in the direction of unemployment.[6])

So here we are apparently treated to another of the various contradictions of this remarkable New Deal era. Depression has made more vocal and persistent the demands of real estate owners for "tax relief for real estate." Depression has increased the need for funds to care for the jobless. Depression has, therefore, promoted the spread of sales taxes. Yet, if the analysis presented above is, in any essential degree, correct, the spread of such taxes has also fostered depression, has put more workers out of jobs and caused increasing pressure for more sales taxes to care for these increasing unemployed, and has, by virtue of the consequent heavier taxes on the poor, brought nearer to the level of "reliefers"—perhaps not infrequently below the level—not a few of those who have continued to have comparatively steady employment. As the government, under the N.R.A., to a considerable extent offset its borrowing and spending recovery program directed to the increase of purchasing power by encouraging monopolistic price rises, and as it adopted a farm-aid program which put many tenants (especially in the South) out of employment, so it has followed a tax policy for the relief (partly) of those injured by the depression, which, itself, must have tended to cause and accentuate depression.

[6] While taxes on output result in reduced wages and interest and rent, the incidence of pay-roll taxes, like the incidence of compulsory insurance of workers against accident, is on wages. The subject of accident insurance I discussed in this connection in an article in the *Journal of Political Economy*, Vol. XXX, No. 1 (February, 1922), entitled "The Incidence of Compulsory Insurance of Workmen"; and this discussion was later republished as chap. vi of *The Economics of Taxation*. For a clear presentation of the theory of incidence as it relates to the new program of social security, with some reference to minor qualifying influences, see Russell S. Bauder, "Probable Incidence of Social Security Taxes," *American Economic Review*, Vol. XXVI, No. 3 (September, 1936).