Employment Effects of Industrial Development Subsidies

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The subject of industrial development subsidies by states or local communities has recently attracted considerable academic discussion.¹ Among the effects of these policies is, allegedly, an employment effect. In this paper, we consider the conditions under which a particular type of industrial subsidy, financed by a payroll tax, will succeed in eliminating regional or local unemployment.² This type of financing for an industrial development subsidy (and the subsequent employment effect) was proposed by J.E. Moes and J.M. Buchanan and was developed by Moes in his book.³

In general, payroll-tax financed subsidies to industries producing for the home market will reduce or eliminate local unemployment in the short-run only under certain conditions with respect to supply and demand elasticities and if reliance is placed on some automatic market-clearing mechanism such as a short-run real balance effect.

It is quite clear that proponents of local subsidies regard them as a means of substituting for the market to produce wage flexibility. That existence of a short-run real balance effect is crucial in support of the effectiveness of local subsidies is indicated by the following remark from Moes' reply to Goffman and Thompson appearing on page 119 "I do accept the adequacy of the Neo-classical position as it relates unemployment to the wage level. In the debate between the Keynesians and the Pigouvians, the latter have, in my opinion, the better of the argument on this point and I thought that nowadays this was also more or less the accepted opinion of the profession." In his original article, our interpretation of the purpose of local subsidies is further strengthened by his comment on page 189 that "if [local subsidies] take the place of wage competition that would occur if wages were completely flexible and which in that case would direct additional investments to those locations where they contribute most to the national product. It can easily be demonstrated that a full-employment community has nothing to gain from the practice, income-wise or otherwise...." Again on page 127 he says "un- and under-employment are the result of wage rigidity. If wages were completely flexible, unemployment could not persist." he goes on in that paragraph to outline the naive Classical position with respect to the effect of cuts in the real wage on product demand.⁴

We suggest that unless the subsidy raises the rate of return on investment in the export sector of the region the desired objective of growth in the labor force will not be attained. In addition to pointing out some types of industries which must be attracted by industrial development subsidies in order for growth objectives to be attained, we make several proposals which could improve the subsidy device as a short-run technique of stimulating regional economic growth.

I

The Moes-Buchanan proposal can be illustrated by a simple model. Suppose we have a nation where an effective minimum wage rate is established by law or by union action. Assume homogeneity among labor and capital units. If there exists a region where the capital/labor ratio is lower than that prevailing in the rest of the nation it is unlikely that all of the labor force of that area will be employed at the national minimum wage rate (labor is, presumably, immobile since wages in this region are not different from that prevailing elsewhere). If wages in this region were free to fall to the full employment level of wages, so the argument goes, a wage differential will arise between this region and the rest of the economy. The existence of the differential would cause emigration of

labor so that regional unemployment will be eliminated and national resource allocation will be more nearly optimal.

On the basis of a model of this type, which does not differentiate between the employment of labor in the production of "home" goods and in the production of "export" goods, Moes suggests that a system of subsidies financed by a payroll tax to industry be instituted to lower the real wage in this region (where wage rigidity prevails) to the full-employment level.⁵ We argue that such an analysis does not give a clear idea of (1) the particular situation in which this policy is likely to prove effective in promoting full employment in a region's resources and (2) the types of industries which must be attracted in order to avoid long-run dependence of the level of employment in the region on continued subsidies.⁶

II

Below we discuss two cases which illuminate the above mentioned questions.

Case I. Assume that only one production sector exists in the region and it produces for the home market only. If under-employment exists because of a minimum wage, a tax and subsidy scheme would reduce workers' money wages, employers' wage cost, and workers' real wages. However, in the one-sector case, a cut in real wages by this method may not be sufficient to restore full employment since the demand for labor functions will shift to the left (as a result of falling consumer demand and prices) or excess inventory will accumulate. This occurs for the standard Keynesian reasons. There seems no reason to suppose that lowering the real wage will result in full employment in this case without increasing the level of investment (or lowering the propensity to save). Since all production is home production and home demand is falling it is difficult to imagine that the rate of return to capital is rising. It should fall, and with this the optimal capital stock should fall. On the basis of a view of investment such as that in Lucas and Witte, the capital/labor ratio should be driven even lower.⁷

Hence, we conclude that a tax-subsidy designed to lower the real wage in this home-oriented one-sector region will not be successful unless a strong real balance effect shifts the savings schedule. There appears to be no reason, on empirical grounds, to expect this to occur.⁸

Case II. Assume that there are two production sectors in region--one which produces for the home market and one which produces for export. Allow the same situation as before to prevail, with the full employment "equilibrium" nominal wage for the region below the minimum wage. Suppose that the home market sector is the underemployed sector.

A lowering of the wage in this case, via the payroll tax will lower the real wage of employed workers, and will lower employers' wage costs. Because of lower worker incomes demand for both home and imported goods will fall but, since supply of imports to the region is (assuming the region in question is "small" relative to the external economy) perfectly elastic in the short run, only the prices of home goods will fall. Due to import substitution, the fall in prices of home goods will be less than the cut in real wages; hence in this case real wages will be cut and employment in home industry will not fall and may rise, even without payment of the subsidy. However, if after complete elimination of imports we still have underemployment existing, the conclusion of Case I applies. Payment of subsidies to home industry will not be successful here in eliminating unemployment through stimulation of further investment in new home market firms (or expansion of existing firms), for the increasing in output will force the price down; this coupled with the decrease in effective home market demand due to the subsidy-finance tax will allow the existence of underemployment.

It appears that the only remedy for such a region is to expand the export sector.⁹ For this to occur the marginal efficiency of investment in the export sector must somehow be raised. This could be done by lowering the real wage cost of the employer in the export sector. If wages are rigid, a subsidy to new firms

may raise the real MEI schedule, creating opportunities for a shift of the underemployed domestic labor force to the export industry. As this occurs the wage rate which will allow full employment in this sector will rise. So long as the MEI of the export sector can be held above the market rate of interest prevailing nationally and an inflow of labor into this sector can be maintained, capital expansion will occur.

III

Thus, we conclude that a subsidy policy as proposed by Moes and Buchanan is likely to prove effective only if the firms attracted to the region or locality are producing for the export market and if the surplus labor in the region is capable of shifting into the export sector. If the unemployed labor is in the home sector and cannot shift into the export sector, a subsidy to firms in the export sector will still result in the desirable rise in the rate of return (causing new investment). However, in order to satisfy their labor requirements, labor will flow into the region. It might be argued that the burden of the subsidy designed to attract new industry will rest on indigenous labor of the region (and of the home industry) while the benefits will accrue substantially to the imported workers. This argument is fallacious since the immigrating workers receive as a wage only their marginal product while the region has available to it the difference between the wage and average product.¹⁰ In addition there may be multiplier effects of the immigration on home industry.

IV

If subsidies are used by regions or localities to attract industry, they must be selective. Employment objectives will only be met if the subsidy is granted to an industry producing for export (or for import substitution). Moreover, the subsidy policy will be more successful in the short run. There is no reason for subsidization of industry on an indiscriminate basis; only a selective subsidy program will be effective. Further, it is not necessary to use the subsidy directly. A program of subsidizing advertising for the export industry, to shift the demand schedule for the products, will raise the rate of return and encourage capital expansion. Alternatively, a program of regional investment in research to lower unit costs will have the same effect of raising the rate of return and encouraging expansion. In the case where the underemployed home industry labor force cannot shift into the export sector, the funds derived from the tax could be used for retraining. The net effect of shifts of labor from the home sector to the export sector will be to raise the real wage in the region or to increase employment at any given real wage.

One further point concerns the belief that subsidy programs of the type discussed here can produce no gains for a full employment region. This view is expressed by Moes:

It can easily be demonstrated that a full employment community has nothing to gain from the (subsidizing) practice, income-wise or otherwise, and in fact we observe that it is the labor-surplus communities that engage in the practice.¹¹

In terms of the analysis of this note such a position is unsupportable. If a subsidy is granted, investment would occur even in a full employment community, provided the industry were producing for export. This would result in immigration, bringing with it the benefits of economies external to the new firms as well as the general regional increase in real income.¹²

It can be argued that fully-employed communities can better afford to subsidize industries and can, in fact, outbid depressed communities in the subsidy game. Merely because we do not often observe such behavior does not prove that it is not beneficial to fully-employed communities.¹³ It does suggest that

political necessity or other incentive does not exist with the more prosperous region or that they are unaware that a region benefits from immigration.

FOOTNOTES

¹In addition to the Moes-Buchanan work cited below, see Ralph Gray, "Industrial Development Subsidies and Efficiency in Resource Allocation," National Tax Journal 17 (June 1964): 164-172. Gray confines his discussion to the effects of subsidy programs on allocation efficiency. Benjamin Bridges, Jr., in "State and Local Inducements for Industry: Part II," National Tax Journal 18 (June 1965): 190-191, discusses the wage-rate inflexibility aspect of local subsidies but does not question their effectiveness in lowering the real wage rate. For a general discussion of the subsidy device in the United States, see C. Lowell Harris, "Subsidies in the United States," Public Finance/Finances Publique 16, no. 3-4 (1961): 270-283.

²Two forms of subsidy payment are considered here. First, a lump-sum payment which serves to reduce unit cost but the size of which is not directly related to output. The second is usually based on the number of workers and varies directly with output. From the standpoint of our argument they have equivalent effects since we are concerned with inability of workers to reduce their real wage because of the fall in product demand schedules in response to a reduction in nominal wages. This fall in product demand schedules shifts the demand for labor (if the demand for labor is derived from product demand).

³J. M. Buchanan and J. E. Moes, "A Regional Countermeasure to National Wage Standardization," American Economic Review 50 (June 1960): 434-438; John E. Moes, Local Subsidies for Industry (Chapel Hill: University of North Carolina Press), and "The Subsidization of Industry by Local Communities in the South," Southern Economic Journal 28 (October 1961): 187-193. See also the exchange between Irving J. Goffman, "Local Subsidies for Industry: Comment," Ibid., 29 (October 1962): 111-114; James H. Thompson, "Local Subsidies for Industry: Reply," ibid., pp. 119-126.

⁴On the short-run effectiveness of the real balance effect, see Charles Schotta, "The Real Balance Effect in the United States, 1947-1963," Journal of Finance 19 (December 1964): 619-630.

⁵The distinction between "home" and "export" industries has a long and honorable history in the literature of international trade and regional studies. The practical significance of the distinction for our argument rests on the assumption that the region is "small" in relation to the external economy with which it trades. The larger the region relative to the external economy, the less likely is our assumption of an extremely elastic supply schedule of imports to the region. This would reduce the difference between price changes in the domestic sector and the import sector in response to a fall in workers' incomes and product demand. Further, the larger the region relative to the external world, the more likely it is that the demand for the region's exports will have an elasticity approaching the world demand elasticity for the products which are exported.

⁶That subsidies are only a short-run means of eliminating underemployment should appear obvious. To rely on them as a long-run method is to perpetuate interregional misallocation of resources. For a discussion of the short-run nature of subsidies, see G. H. Borts and J. L. Stein, Economic Growth in a Free Market (New York: Columbia University Press, 1964), pp. 198-201.

⁷R. E. Lucas, Jr., "Optimal Investment Policy and the Flexible Accelerator," International Economic Review (1967): 78-85, and J. G. Witte, Jr., "The Micro-foundations of the Social Investment Function," Journal of Political Economy (1963): 441-456.

FOOTNOTES---Continued

⁸The evidence in Schotta, op. cit., and in C. Schotta, "The Real Balance in the U. S.: A Survey of the Empirical Studies," read at the Econometric Society meetings, San Francisco, 28 December 1966, suggests that this class of asset effects on consumption or investment demand is extremely weak. The Moes-Buchanan arguments rest essentially on the empirical validity of the Patinkin system in a closed economy. See Moes', "Reply," op. cit., for statements which make this point clear.

⁹For a consideration of the process of regional economic growth which assigns considerable importance to the export sector, see G. H. Borts and J. L. Stein, op. cit.

¹⁰For a proof of this proposition, see Borts and Stein, p. 192.

¹¹Moes, Southern Economic Journal, op. cit., p. 189.

¹²For an examination of the impact of immigration on the level of real income in a region, see Borth and Stein, pp. 192, 230-231.

¹³However, in this connection the Assembly of the State of California in its Concurrent Resolution No. 3, 4 April 1966, declared its intent to appropriate the sum of \$15,000,000 for "land acquisition, site development, and whatever other site preparation as may be required to put the State of California in the best possible position to be selected as the locaton for the (Atomic Energy Commission) 200 BRV accelerator," Assembly Daily Journal, 4 April 1966, pp. 461-462. This is a rather substantial subsidy committment to attract an "export" industry.