I

THE RELATION OF HOME INVESTMENT TO UNEMPLOYMENT*

I

The case for ‘public works’ has often been discussed, and there is a final plea that the advocate almost invariably appends to his argument. It is important, we are told, not to overlook the beneficial repercussions that will result from the expenditure of the newly-employed men’s wages. But little is done to evaluate these repercussions in concrete terms. The main purpose, though not the only purpose, of this article is to outline the means by which this gap could be filled, and incidentally to suggest that the case for ‘public works’ may be stronger than is always recognised.

The argument will apply to the effects of any net increase in the rate of home investment. The increased employment that is required in connection actually with the increased investment will be described as the ‘primary’ employment. It includes the ‘direct’ employment, and also, of course, the ‘indirect’ employment that is set up in the production and transport of the raw materials required for making the new investment. To meet the increased expenditure of wages and profits that is associated with the primary employment, the production of consumption-goods is increased. Here again wages and profits are increased, and the effect will be passed on, though with diminished intensity. And so on ad infinitum. The total employment that is set up in this way in the production of consumption-goods will be termed the ‘secondary’ employment. The ratio of secondary to primary employment is a measure of these ‘beneficial repercussions’ that are so often referred to.

It will simplify the process of exposition if expenditure by the Government on roads is taken as a convenient instance of an increase in home investment. But this simplification must not be taken to imply either that there is anything in the argument that confines its

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application to investment taking place directly under the auspices of the Government, or that the building of more roads is a particularly desirable form of investment.

II

It is necessary, in the first place, to clear out of the way the objection that any reduction of unemployment that is effected by Government action will be at the expense of an equal increase of unemployment in some other quarter. If the Government were to raise the funds required to pay for the roads by means of taxation, it is obvious that unfavourable reactions would be probable. Of these the most important would be the ‘secondary unemployment’ that would result if increased taxation were to reduce the taxpayers’ expenditure on consumption-goods. The amount of this ‘secondary unemployment’ would depend on the extent to which increased taxes are paid at the expense of consumption rather than of saving. But that is a matter for separate study; and throughout this article it will be supposed that the necessary funds are raised by means of borrowing.

It is sometimes claimed that if the Government borrows money for the purpose of building roads, this necessitates an equal reduction in the funds available for investment from other sources. But it is clear that even if this claim has any force at all, it cannot have a universal application. For it is always within the power of the banking system to advance to the Government the cost of the roads without in any way affecting the flow of investment along the normal channels. If it assists the processes of thought, it may be imagined that the Government obtains its funds in this kind of way. But it will become clear in the sequel that no such hypothesis is really necessary. For it will be demonstrated later on that, pari passu with the building of roads,

1 How important is the influence that has been exerted upon British policy by this claim is forcibly demonstrated by the following information supplied in 1927 by the British Government to the International Labour Office: ‘While it is not possible to give any specific indications that competition arose with other enterprises owing to the raising of the State of moneys for the various State-assisted employment projects, the decision taken by the Government at the end of 1925 to restrict grants for relief schemes was based mainly on the view that, the supply of capital in the country being limited, it was undesirable to divert any appreciable proportion of this supply from normal trade channels.’ (Unemployment and Public Works, The International Labour Office, 1931, p. 30.)

2 See p. 18
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funds are released from various sources at precisely the rate that is required to pay the cost of the roads.

It is, however, important to realise that the intelligent co-operation of the banking system is being taken for granted. It is supposed that the object of the central bank is to achieve the maximum of employment that is consistent with remaining on the gold standard. If the increased circulation of notes and the increased demand for working capital that may result from increased employment are made the occasion for a restriction of credit, then any attempt to increase employment – whether it is by way of road-building or by any other means, or, indeed, by awaiting the return of world prosperity – may be rendered nugatory.

III

It will be assumed throughout the greater part of this article that money-wages are not raised as a consequence of the reduction in unemployment or of any rise in prices with which the reduction in unemployment may be associated. Even if this assumption is not entirely reasonable, it is clear that it is essential if the analysis is to proceed at all. (But it is suggested, though with some hesitation, that over a limited, and not so very limited, range the assumption is not appreciably wide of reality.) To take into account the effects of a possible rise in wages would necessitate, not only an estimate of the amount of the rise, but, far more serious, an analysis of the effect of a rise in wages on the level of employment; and such an investigation must be ruled outside the scope of this article.

An attempt will, however, be made¹ to demonstrate that there is some increase in employment, even though real-wages are maintained at their former level – or, in other words, if money-wages are raised so as to compensate for the rise in prices. But to the extent, on the other hand, that it is to the reduction in unemployment rather than to the rise in prices that wages respond, there is clearly no method whatever of increasing the volume of employment.

IV

Finally, no account will be taken, in assessing the effects on employment, of any increase in productive efficiency that may result from the

¹ In a subsequent number of the Economic Journal. [No note or article on this subject was written.]
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Government’s expenditure. That, perhaps, is why roads are a good illustration to adopt as an object of such expenditure.

For this reason, too, the argument of this article could, with suitable modifications, be applied to a discussion of the desirability of reducing the Sinking Fund or of the undesirability of reducing the dole.

Considerable use will be made in these pages of the expression ‘saving on the dole’. It must be clearly understood that these words are not intended to imply any moral judgment on the system of unemployment insurance. The word ‘dole’ is used, purely as a matter of convenience, to cover the whole of the expenditure of an unemployed man on consumption, whether it is derived from the Unemployment Insurance Fund, from local authorities, from charity, from borrowing, from his friends and relations or from his own accumulated savings.

For the purpose of developing the argument it will be assumed that when a man obtains work, the ‘saving on the dole’ that results does not have the effect of increasing the consumption of other members of the community. Above all, this assumption presupposes that any change that occurs in the expenditure of the Unemployment Insurance Fund falls entirely on the rate at which the fund is increasing or diminishing its debt and on the amount of the budgetary Sinking Fund. Manifestly this assumption is a somewhat unreal one. Even if contributions to the Fund are not affected, a reduction in the cost of transitional benefit will almost certainly lead to some reduction of national taxation, and a reduction of the rate at which the Fund is getting into debt will lead to some scaling down of the Chancellor of the Exchequer’s standards of respectability in regard to Sinking Funds – and so again to a reduction of taxation.

But, in relation to the amount of the saving on the dole, any reduction of taxation that occurs is likely to be small – this will be obvious if consideration is paid to the present level of the real Sinking Fund – and the consequent increase in expenditure on consumption will be still smaller. In so far, however, as it occurs, it adds an a fortiori force to the argument of the following pages. The secondary employment is increased if road-building results in less taxation and consequently in greater expenditure by taxpayers on consumption-goods.¹

¹ If this increase in expenditure were exactly equal to the saving on the dole, and if it were divided between home- and foreign-produced goods in the
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VI

I turn now to the often debated question of the effect of Government investment on the general level of prices. This question has been debated from various points of view. It has been debated with an eye on the expansion of bank credit that may accompany the building of roads. Somewhat more adapted, perhaps, to the end in view have been the discussions that have centred on the various alleviations that partially set off the increase in purchasing power caused by increased investment. Of these the most important are the saving on the dole and the increased imports of consumption-goods and of raw materials that take place when employment is increased.

But it is, I think, quite clear that a very important, though nevertheless extremely obvious, consideration is usually omitted in these discussions. It is, perhaps, its very obviousness that accounts for its being so persistently overlooked. For the line of approach that will now be taken up is the one that would be followed under the impulse of crude common-sense — there is no room here for analytical subtleties. No claims of originality are advanced for adopting it, but that does not mean that it is not very important.

The price-level and output of home-produced consumption-goods, just like the price and output of any single commodity, are determined by the conditions of supply and demand. If the conditions of supply can be regarded as fixed, both the price-level and the output are determined by the demand; and there is a unique correlation between price-level and output. For a given output of consumption-goods there corresponds a certain price-level of consumption-goods; and this is their price-level quite independently of the causes that are responsible for maintaining the given output. If there is a certain increase in employment on the production of consumption-goods, the change in their price-level is the same whether the increased employment is fostered by large advances from the central bank to the Government or whether it is the symptom of the return of prosperity.

same proportions as the dole is divided, then the same consequences would ensue as would ensue on my assumption — that there is no such increase in expenditure — if the dole were zero, i.e. if the unemployed lived on air. If a greater amount were spent on home-produced goods than would have been spent on home-produced goods if the money had been spent by the unemployed, then the results can be gauged by supposing, on the basis of my assumption, that the dole is negative.
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by a more natural route. If this is to be true, it is only necessary that
the change shall be actuated by a change in the conditions of demand
and not by a change in the conditions of supply. Then the volume of
employment engaged in producing consumption-goods and the price-
level of home-produced consumption-goods are uniquely correlated.
For a given increase in the output of consumption-goods the change in
their price-level depends only on the supply curve of consumption-
goods in general, the curve being drawn from the point of view of the
particular period of time that is under consideration – long, short, or
otherwise. If the supply curve rises steeply, there is a large rise in
prices; if conditions of constant supply price prevail, there is no rise
in prices; and if the supply curve were falling, there would be a fall
in prices.

VII

The relief of unemployment by means of national development is
often objected to on the grounds that it will cause a rise in the cost of
living. The extraordinary fatuity of this objection is, of course, quite
apparent. There is nothing unnatural about the rise in prices caused
by the building of roads. It will occur equally if employment in the
production of consumption-goods is stimulated to an equal extent by
more natural means (other than a reduction of costs). Indeed, if it is
an improvement in world economic conditions that is the cause of
increased employment, the cost of living will rise by considerably
more than if the cause is the building of roads. And this for two
reasons. In the first place, not only the whole of the secondary
employment but also part of the primary employment will in this
case be engaged in producing consumption-goods. For part of the
primary employment will be engaged in the production of commodi-
ties that are to be exported or that were previously imported, and
some of these commodities will be identical with commodities that
enter into consumption at home. It follows that, for a given volume of
primary and secondary employment, the output of home-produced
consumption-goods is greater, and therefore the cost of living is
higher, if the cause of the change is an improvement in the conditions
of world demand than if it is the building of such things as roads,
whose production can be carried on without appreciably affecting the
condition of supply of consumption-goods. But it is the second reason
that is likely to be more important quantitatively. An increase in
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employment that is part of a general revival in world trade will be accompanied by a rise in the prices of imported consumption-goods (including the supremely important category of food) and of imported raw materials, while the rise in prices that is caused by a purely local policy of road-building will be almost entirely confined to that part of the national consumption that is produced at home. The effect on the cost of living is, therefore, far more serious in the former case than in the latter case.

Even more fantastic is it to argue at the same time that road-building causes a rise in prices and yet that it is not responsible for any net addition to the volume of employment. The rise in prices, if it occurs at all, is a natural concomitant of increased output, to a degree indicated by the slope of the supply curve. It is impossible to maintain at the same time that prices will rise and that there will be no increase in output. If the result, owing to the operation of some mysterious cause, of the construction of roads by the Government is an equal reduction of investment in other channels, there is no secondary employment and no rise in prices. But if it is a fall in the output of consumption-goods that compensates for the employment provided on the roads (as might conceivably be the case if the Government raises the necessary funds by taxation rather than by borrowing), then the effect of road-building is to cause a fall in prices (on the assumption that production takes place under conditions of increasing supply price).

VIII

It should now be clear why it is hopeless to discuss the possibility of a rise in prices in terms merely of the saving on the dole and the increase in imports that result from increased employment. These indeed are two factors, as we shall see later, that determine the amount of the secondary employment. But before it is possible to deduce the magnitude of the change in prices, it is necessary to introduce the slope of the supply curve. Nor is it as simple as that. For the amount of secondary employment itself depends, as will be shown later, on the extent of the rise in prices by which it is accompanied. The two are uniquely correlated, but the amount of secondary employment is effect as well as cause. The amount of secondary employment must be such that, together with the primary employment, it gives rise to just so much alleviation to the original investment (in the
shape of saving on the dole, increased imports, and so on) as will account for the rise in prices that is appropriate to that amount of secondary employment. If the supply of commodities in general is perfectly elastic, there can be no rise in prices and the secondary employment must be such as to make it so. If the supply of commodities is perfectly inelastic, there can be no secondary employment and the rise in prices must be so great that the net secondary employment is zero.

In general it can be said that, for a given supply curve, the secondary employment is smaller the greater are the saving on the dole, the increase in imports, and the other alleviations that accompany a unit increase in employment. It follows that it is perfectly true to state that the greater the extent of these alleviations, the smaller is the rise in prices that results from a given amount of road-building. But from such a viewpoint the problem is liable to assume a peculiarly distorted aspect. It is not merely that there would be a failure to recognise the predominant importance of the supply curve – the fact, for instance, that if supply is perfectly elastic, there can be no rise in prices. It might also appear that the claims of road-building as a national policy are stronger if the alleviations (saving on the dole, increase in imports, etc.) are great than if the alleviations are small, because it is when the alleviations are great that the rise in prices is small. But in fact it may just be that the alleviations are great that road-building is least justifiable, for it is then that the secondary employment is small – and the ‘beneficial repercussions’ are weak. It is possible to imagine a case – it is very far removed from reality – where unemployed men who are set to work on making roads devote the whole of the net increase in their incomes to goods that have to be imported. There would then be no rise in prices – the alleviations are equivalent to the whole of the original investment. But road-making would be a far weaker economic proposition than it is in fact, for there would be no secondary employment.

Perhaps it is not altogether inappropriate to pause at this point to consider the appearance of our line of approach in the light of Mr Keynes’ new equations. The building of roads represents an increase in investment. But before it is possible to assess the net effect on the difference between savings and investment, it is necessary to bring
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into the account those alleviations which have already been several times referred to. Payment of the dole represents negative saving, and the saving on the dole represents, therefore, an addition to total savings. An increase of imports, whether of consumption-goods or of raw materials, represents a diminution of the foreign balance and therefore of total investment. If entrepreneurs continue to spend the same amount of money on consumption-goods as before although output has increased, their savings, in Mr Keynes’ sense, have increased. On the other hand, to the extent that non-wage-earners (and wage-earners who were previously in employment) increase their expenditure on consumption-goods irrespective of any increase in total output – whether as a result of the fact that they have more to spend, because of increased profits, or of the fact that prices of consumption-goods have gone up – savings diminish: this is an aggravation. The new value of the difference between savings and investment, appropriate to Mr Keynes’ equations, can only be deduced by subtracting the alleviations corresponding to the total new employment from the cost of the roads, and adding the aggravation.

If the supply of consumption-goods is perfectly inelastic, there is no secondary employment and the problem is considerably simplified. It is only necessary now to consider the alleviations associated with a known volume of primary employment – and to subtract the aggravation. Prices rise by an amount corresponding to the difference between the cost of the roads and the amount of these alleviations. If the aggravation can be neglected, the rise in the price-level of home-produced consumption-goods is equal to the increase in expenditure directed towards them by the road-makers divided by their volume. This is the case when all productive resources available for the production of consumption-goods are already being utilised and, over a certain range of output and over a sufficiently short period of time, it is not possible to increase their output appreciably and there is no incentive for an appreciable reduction of output.

But simplest of all is the case where it is not the supply of consumption-goods that is completely inelastic but total employment that is fixed, so that if investment increases, the production of consumption-goods must diminish by an equal amount. Then there is no alleviation, since there is no change in employment, and if in addition the aggravation is negligible, the rise in the price-level of consumption-goods is simply equal to the cost of the new investment
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divided by their volume. This is the case to which Mr Keynes’ equations apply in their full simplicity. It occurs when the whole of the factors of production are employed, and continue to be employed, in producing either for consumption or for investment.

At the other end of the scale is the case, very much closer to the actual conditions that prevail today, where the supply of consumption-goods is perfectly elastic. The price-level of consumption-goods is then constant, and, however great may be the cost of the investment that is taking place in road-building, the secondary employment will be such that the total alleviation (minus the aggravation) keeps the difference between total savings and total investment at a constant amount (or, more accurately, at an amount that varies in direct proportion with the output of consumption-goods).

But this conclusion – that under certain circumstances employment can be increased without any significant alteration in the difference between savings and investment – does not in the slightest degree invalidate the causal force of Mr Keynes’ argument. The motive force that increases employment is an increase in investment or a reduction in savings. As a concomitant of this increase in employment occur other changes in savings and investment which, partially or wholly, neutralise the effect on the difference between savings and investment of the change that is the cause of the increased employment.

X

It should now be clear that the whole question ultimately turns on the nature of the supply curve of consumption-goods. At normal times, when productive resources are fully employed, the supply of consumption-goods in the short period is highly inelastic. The building of roads carries with it little secondary employment and causes a large rise in prices. But at times of intense depression, when nearly all industries have at their disposal a large surplus of unused plant and labour, the supply curve is likely to be very elastic. The amount of secondary employment is then large and the rise in prices is small.

If there is in existence a large stock of surplus resources that are not very inferior to the worst of those that are actually being employed, the elasticity of supply is likely to be very large indeed up to the

1 As is, par excellence, the case when the ‘short-time’ method of working plant is in operation over a wide field.