Chapter 10

THE MARGINAL PROPENSITY TO CONSUME AND THE MULTIPLIER

We established in chapter 8 that employment can only increase *pari passu* with investment unless there is a change in the propensity to consume. We can now carry this line of thought a stage further. For in given circumstances a definite ratio, to be called the *multiplier*, can be established between income and investment and, subject to certain simplifications, between the total employment and the employment directly employed on investment (which we shall call the *primary employment*). This further step is an integral part of our theory of employment, since it establishes a precise relationship, given the propensity to consume, between aggregate employment and income and the rate of investment. The conception of the multiplier was first introduced into economic theory by Mr R. F. Kahn in his article on 'The Relation of Home Investment to Unemployment' (*Economic Journal*, June 1931). His argument in this article depended on the fundamental notion that, if the propensity to consume in various hypothetical circumstances is (together with certain other conditions) taken as given and we conceive the monetary or other public authority to take steps to stimulate or to retard investment, the change in the amount of employment will be a function of the net change in the amount of investment; and it aimed at laying down general principles by which to estimate the actual quantitative relationship between an incre-

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ment of net investment and the increment of aggregate employment which will be associated with it. Before coming to the multiplier, however, it will be convenient to introduce the conception of the *marginal propensity to consume*.

I

The fluctuations in real income under consideration in this book are those which result from applying different quantities of employment (i.e. of labour-units) to a given capital equipment, so that real income increases and decreases with the number of labour-units employed. If, as we assume in general, there is a decreasing return at the margin as the number of labour-units employed on the given capital equipment is increased, income measured in terms of wage-units will increase more than in proportion to the amount of employment, which, in turn, will increase more than in proportion to the amount of real income measured (if that is possible) in terms of product. Real income measured in terms of product and income measured in terms of wage-units will, however, increase and decrease together (in the short period when capital equipment is virtually unchanged). Since, therefore, real income, in terms of product, may be incapable of precise numerical measurement, it is often convenient to regard income in terms of wage-units (Y_w) as an adequate working index of changes in real income. In certain contexts we must not overlook the fact that, in general, Y_w increases and decreases in a greater proportion than real income; but in other contexts the fact that they always increase and decrease together renders them virtually interchangeable.

Our normal psychological law that, when the real income of the community increases or decreases, its consumption will increase or decrease but not so fast, can, therefore, be translated—not, indeed, with absolute accuracy but subject to qualifications which are obvious

and can easily be stated in a formally complete fashion—into the propositions that ΔC_w and ΔY_w have the same sign, but $\Delta Y_w > \Delta C_w$, where C_w is the consumption in terms of wage-units. This is merely a repetition of the proposition already established on p. 29 above. Let us define, then, $\dfrac{dC_w}{dY_w}$ as the *marginal propensity to consume*.

This quantity is of considerable importance, because it tells us how the next increment of output will have to be divided between consumption and investment. For $\Delta Y_w = \Delta C_w + \Delta I_w$, where ΔC_w and ΔI_w are the increments of consumption and investment; so that we can write $\Delta Y_w = k\Delta I_w$, where $1 - \dfrac{1}{k}$ is equal to the marginal propensity to consume.

Let us call k the *investment multiplier*. It tells us that, when there is an increment of aggregate investment, income will increase by an amount which is k times the increment of investment.

II

Mr Kahn's multiplier is a little different from this, being what we may call the *employment multiplier* designated by k', since it measures the ratio of the increment of total employment which is associated with a given increment of primary employment in the investment industries. That is to say, if the increment of investment ΔI_w leads to an increment of primary employment ΔN_2 in the investment industries, the increment of total employment $\Delta N = k' \Delta N_2$.

There is no reason in general to suppose that $k = k'$. For there is no necessary presumption that the shapes of the relevant portions of the aggregate supply functions for different types of industry are such that the ratio of the increment of employment in the one set of industries to the increment of demand which has

stimulated it will be the same as in the other set of industries.[1] It is easy, indeed, to conceive of cases, as, for example, where the marginal propensity to consume is widely different from the average propensity, in which there would be a presumption in favour of some inequality between $\dfrac{\Delta Y_w}{\Delta N}$ and $\dfrac{\Delta I_w}{\Delta N_2}$, since there would be very divergent proportionate changes in the demands for consumption-goods and investment-goods respectively. If we wish to take account of such possible differences in the shapes of the relevant portions of the aggregate supply functions for the two groups of industries respectively, there is no difficulty in rewriting the following argument in the more generalised form. But to elucidate the ideas involved, it will be convenient to deal with the simplified case where $k = k'$.

It follows, therefore, that, if the consumption psychology of the community is such that they will choose to consume, e.g. nine-tenths of an increment of income,[2] then the multiplier k is 10; and the total employment caused by (e.g.) increased public works will be ten times the primary employment provided by

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[1]   More precisely, if e_e and e'_e are the elasticities of employment in industry as a whole and in the investment industries respectively, and if N and N_2 are the numbers of men employed in industry as a whole and in the investment industries, we have

$$\Delta Y_w = \frac{Y_w}{e_e . N} \Delta N$$

and

$$\Delta I_w = \frac{I_w}{e'_e . N_2} \Delta N_2,$$

so that

$$\Delta N = \frac{e_e I_w N}{e'_e N_2 Y_w} k . \Delta N_2,$$

i.e.

$$k' = \frac{I_w}{e'_e N_2} . \frac{e_e N}{Y_w} k.$$

If, however, there is no reason to expect any material relevant difference in the shapes of the aggregate supply functions for industry as a whole and for the investment industries respectively, so that $\dfrac{I_w}{e'_e . N_2} = \dfrac{Y_w}{e_e . N}$, then it follows that $\dfrac{\Delta Y_w}{\Delta N} = \dfrac{\Delta I_w}{\Delta N_2}$ and, therefore, that $k = k'$.

[2]   Our quantities are measured throughout in terms of wage-units.

the public works themselves, assuming no reduction of investment in other directions. Only in the event of the community maintaining their consumption unchanged in spite of the increase in employment and hence in real income, will the increase of employment be restricted to the primary employment provided by the public works. If, on the other hand, they seek to consume the whole of any increment of income, there will be no point of stability and prices will rise without limit. With normal psychological suppositions, an increase in employment will only be associated with a decline in consumption if there is at the same time a change in the propensity to consume—as the result, for instance, of propaganda in time of war in favour of restricting individual consumption; and it is only in this event that the increased employment in investment will be associated with an unfavourable repercussion on employment in the industries producing for consumption.

This only sums up in a formula what should by now be obvious to the reader on general grounds. An increment of investment in terms of wage-units cannot occur unless the public are prepared to increase their savings in terms of wage-units. Ordinarily speaking, the public will not do this unless their aggregate income in terms of wage-units is increasing. Thus their effort to consume a part of their increased incomes will stimulate output until the new level (and distribution) of incomes provides a margin of saving sufficient to correspond to the increased investment. The multiplier tells us by how much their employment has to be increased to yield an increase in real income sufficient to induce them to do the necessary extra saving, and is a function of their psychological propensities.[1] If saving is the pill and consumption is the jam, the extra jam has to be proportioned to the size of the

[1] Though in the more generalised case it is also a function of the physical conditions of production in the investment and consumption industries respectively.

additional pill. Unless the psychological propensities of the public are different from what we are supposing, we have here established the law that increased employment for investment must necessarily stimulate the industries producing for consumption and thus lead to a total increase of employment which is a multiple of the primary employment required by the investment itself.

It follows from the above that, if the marginal propensity to consume is not far short of unity, small fluctuations in investment will lead to wide fluctuations in employment; but, at the same time, a comparatively small increment of investment will lead to full employment. If, on the other hand, the marginal propensity to consume is not much above zero, small fluctuations in investment will lead to correspondingly small fluctuations in employment; but, at the same time, it may require a large increment of investment to produce full employment. In the former case involuntary unemployment would be an easily remedied malady, though liable to be troublesome if it is allowed to develop. In the latter case, employment may be less variable but liable to settle down at a low level and to prove recalcitrant to any but the most drastic remedies. In actual fact the marginal propensity to consume seems to lie somewhere between these two extremes, though much nearer to unity than to zero; with the result that we have, in a sense, the worst of both worlds, fluctuations in employment being considerable and, at the same time, the increment in investment required to produce full employment being too great to be easily handled. Unfortunately the fluctuations have been sufficient to prevent the nature of the malady from being obvious, whilst its severity is such that it cannot be remedied unless its nature is understood.

When full employment is reached, any attempt to increase investment still further will set up a tendency in money-prices to rise without limit, irrespective of the marginal propensity to consume; i.e. we shall

have reached a state of true inflation.[1] Up to this point, however, rising prices will be associated with an increasing aggregate real income.

III

We have been dealing so far with a *net* increment of investment. If, therefore, we wish to apply the above without qualification to the effect of (e.g.) increased public works, we have to assume that there is no offset through decreased investment in other directions,—and also, of course, no associated change in the propensity of the community to consume. Mr Kahn was mainly concerned in the article referred to above in considering what offsets we ought to take into account as likely to be important, and in suggesting quantitative estimates. For in an actual case there are several factors besides some specific increase of investment of a given kind which enter into the final result. If, for example, a government employs 100,000 additional men on public works, and if the multiplier (as defined above) is 4, it is not safe to assume that aggregate employment will increase by 400,000. For the new policy may have adverse reactions on investment in other directions.

It would seem (following Mr Kahn) that the following are likely in a modern community to be the factors which it is most important not to overlook (though the first two will not be fully intelligible until after Book IV has been reached):

(i) The method of financing the policy and the increased working cash, required by the increased employment and the associated rise of prices, may have the effect of increasing the rate of interest and so retarding investment in other directions, unless the monetary authority takes steps to the contrary; whilst, at the same time, the increased cost of capital goods will reduce their marginal efficiency to the private in-

[1] Cf. chapter 21, p. 303, below.

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vestor, and this will require an actual *fall* in the rate of interest to offset it.

(ii) With the confused psychology which often prevails, the government programme may, through its effect on 'confidence', increase liquidity-preference or diminish the marginal efficiency of capital, which, again, may retard other investment unless measures are taken to offset it.

(iii) In an open system with foreign-trade relations, some part of the multiplier of the increased investment will accrue to the benefit of employment in foreign countries, since a proportion of the increased consumption will diminish our own country's favourable foreign balance; so that, if we consider only the effect on domestic employment as distinct from world employment, we must diminish the full figure of the multiplier. On the other hand our own country may recover a portion of this leakage through favourable repercussions due to the action of the multiplier in the foreign country in increasing its economic activity.

Furthermore, if we are considering changes of a substantial amount, we have to allow for a progressive change in the marginal propensity to consume, as the position of the margin is gradually shifted; and hence in the multiplier. The marginal propensity to consume is not constant for all levels of employment, and it is probable that there will be, as a rule, a tendency for it to diminish as employment increases; when real income increases, that is to say, the community will wish to consume a gradually diminishing proportion of it.

There are also other factors, over and above the operation of the general rule just mentioned, which may operate to modify the marginal propensity to consume, and hence the multiplier; and these other factors seem likely, as a rule, to accentuate the tendency of the general rule rather than to offset it. For, in the first place, the increase of employment will tend, owing

to the effect of diminishing returns in the short period, to increase the proportion of aggregate income which accrues to the entrepreneurs, whose individual marginal propensity to consume is probably less than the average for the community as a whole. In the second place, unemployment is likely to be associated with negative saving in certain quarters, private or public, because the unemployed may be living either on the savings of themselves and their friends or on public relief which is partly financed out of loans; with the result that re-employment will gradually diminish these particular acts of negative saving and reduce, therefore, the marginal propensity to consume more rapidly than would have occurred from an equal increase in the community's real income accruing in different circumstances.

In any case, the multiplier is likely to be greater for a small net increment of investment than for a large increment; so that, where substantial changes are in view, we must be guided by the average value of the multiplier based on the average marginal propensity to consume over the range in question.

Mr Kahn has examined the probable quantitative result of such factors as these in certain hypothetical special cases. But, clearly, it is not possible to carry any generalisation very far. One can only say, for example, that a typical modern community would probably tend to consume not much less than 80 per cent of any increment of real income, if it were a closed system with the consumption of the unemployed paid for by transfers from the consumption of other consumers, so that the multiplier after allowing for offsets would not be much less than 5. In a country, however, where foreign trade accounts for, say, 20 per cent of consumption and where the unemployed receive out of loans or their equivalent up to, say, 50 per cent of their normal consumption when in work, the multiplier may fall as low as 2 or 3 times the employment pro-

vided by a specific new investment. Thus a given fluctuation of investment will be associated with a much less violent fluctuation of employment in a country in which foreign trade plays a large part and unemployment relief is financed on a larger scale out of borrowing (as was the case, e.g. in Great Britain in 1931), than in a country in which these factors are less important (as in the United States in 1932).[1]

It is, however, to the general principle of the multiplier to which we have to look for an explanation of how fluctuations in the amount of investment, which are a comparatively small proportion of the national income, are capable of generating fluctuations in aggregate employment and income so much greater in amplitude than themselves.

IV

The discussion has been carried on, so far, on the basis of a change in aggregate investment which has been foreseen sufficiently in advance for the consumption industries to advance *pari passu* with the capital-goods industries without more disturbance to the price of consumption-goods than is consequential, in conditions of decreasing returns, on an increase in the quantity which is produced.

In general, however, we have to take account of the case where the initiative comes from an increase in the output of the capital-goods industries which was not fully foreseen. It is obvious that an initiative of this description only produces its full effect on employment over a period of time. I have found, however, in discussion that this obvious fact often gives rise to some confusion between the logical theory of the multiplier, which holds good continuously, without time-lag, at all moments of time, and the consequences of an expansion in the capital-goods industries which take gradual effect, subject to time-lag and only after an interval.

[1] Cf. however, below, p. 128, for an American estimate.

The relationship between these two things can be cleared up by pointing out, firstly that an unforeseen, or imperfectly foreseen, expansion in the capital-goods industries does not have an instantaneous effect of equal amount on the aggregate of investment but causes a gradual increase of the latter; and, secondly, that it may cause a temporary departure of the marginal propensity to consume away from its normal value, followed, however, by a gradual return to it.

Thus an expansion in the capital-goods industries causes a series of increments in aggregate investment occurring in successive periods over an interval of time, and a series of values of the marginal propensity to consume in these successive periods which differ both from what the values would have been if the expansion had been foreseen and from what they will be when the community has settled down to a new steady level of aggregate investment. But in every interval of time the theory of the multiplier holds good in the sense that the increment of aggregate demand is equal to the product of the increment of aggregate investment and the multiplier as determined by the marginal propensity to consume.

The explanation of these two sets of facts can be seen most clearly by taking the extreme case where the expansion of employment in the capital-goods industries is so entirely unforeseen that in the first instance there is no increase whatever in the output of consumption-goods. In this event the efforts of those newly employed in the capital-goods industries to consume a proportion of their increased incomes will raise the prices of consumption-goods until a temporary equilibrium between demand and supply has been brought about partly by the high prices causing a postponement of consumption, partly by a redistribution of income in favour of the saving classes as an effect of the increased profits resulting from the higher prices, and partly by the higher prices causing a depletion

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of stocks. So far as the balance is restored by a postponement of consumption there is a temporary reduction of the marginal propensity to consume, i.e. of the multiplier itself, and in so far as there is a depletion of stocks, aggregate investment increases for the time being by less than the increment of investment in the capital-goods industries,—i.e. the thing to be multiplied does not increase by the full increment of investment in the capital-goods industries. As time goes on, however, the consumption-goods industries adjust themselves to the new demand, so that when the deferred consumption is enjoyed, the marginal propensity to consume rises temporarily above its normal level, to compensate for the extent to which it previously fell below it, and eventually returns to its normal level; whilst the restoration of stocks to their previous figure causes the increment of aggregate investment to be temporarily greater than the increment of investment in the capital-goods industries (the increment of working capital corresponding to the greater output also having temporarily the same effect).

The fact that an unforeseen change only exercises its full effect on employment over a period of time is important in certain contexts;—in particular it plays a part in the analysis of the trade cycle (on lines such as I followed in my *Treatise on Money*). But it does not in any way affect the significance of the theory of the multiplier as set forth in this chapter; nor render it inapplicable as an indicator of the total benefit to employment to be expected from an expansion in the capital goods industries. Moreover, except in conditions where the consumption industries are already working almost at capacity so that an expansion of output requires an expansion of plant and not merely the more intensive employment of the existing plant, there is no reason to suppose that more than a brief interval of time need elapse before employment in the consumption industries is advancing *pari passu* with

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employment in the capital-goods industries with the multiplier operating near its normal figure.

V

We have seen above that the greater the marginal propensity to consume, the greater the multiplier, and hence the greater the disturbance to employment corresponding to a given change in investment. This might seem to lead to the paradoxical conclusion that a poor community in which saving is a very small proportion of income will be more subject to violent fluctuations than a wealthy community where saving is a larger proportion of income and the multiplier consequently smaller.

This conclusion, however, would overlook the distinction between the effects of the marginal propensity to consume and those of the average propensity to consume. For whilst a high marginal propensity to consume involves a larger *proportionate* effect from a given percentage change in investment, the *absolute* effect will, nevertheless, be small if the *average* propensity to consume is also high. This may be illustrated as follows by a numerical example.

Let us suppose that a community's propensity to consume is such that, so long as its real income does not exceed the output from employing 5,000,000 men on its existing capital equipment, it consumes the whole of its income; that of the output of the next 100,000 additional men employed it consumes 99 per cent, of the next 100,000 after that 98 per cent, of the third 100,000 97 per cent and so on; and that 10,000,000 men employed represents full employment. It follows from this that, when $5{,}000{,}000 + n \times 100{,}000$ men are employed, the multiplier at the margin is $\dfrac{100}{n}$, and $\dfrac{n(n+1)}{2(50+n)}$ per cent of the national income is invested.

Thus when 5,200,000 men are employed the multiplier is very large, namely 50, but investment is only a trifling proportion of current income, namely, 0·06 per cent; with the result that if investment falls off by a large proportion, say about two-thirds, employment will only decline to 5,100,000, i.e. by about 2 per cent. On the other hand, when 9,000,000 men are employed, the marginal multiplier is comparatively small, namely $2\frac{1}{2}$, but investment is now a substantial proportion of current income, namely, 9 per cent; with the result that if investment falls by two-thirds, employment will decline to 6,900,000, namely, by 19 per cent. In the limit where investment falls off to zero, employment will decline by about 4 per cent in the former case, whereas in the latter case it will decline by 44 per cent.[1]

In the above example, the poorer of the two communities under comparison is poorer by reason of under-employment. But the same reasoning applies by easy adaptation if the poverty is due to inferior skill, technique or equipment. Thus whilst the multiplier is larger in a poor community, the effect on employment of fluctuations in investment will be much greater in a wealthy community, assuming that in the latter current investment represents a much larger proportion of current output.[2]

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[1] Quantity of investment is measured, above, by the number of men employed in producing it. Thus if there are diminishing returns per unit of employment as employment increases, what is double the quantity of investment on the above scale will be less than double on a physical scale (if such a scale is available).

[2] More generally, the ratio of the proportional change in total demand to the proportional change in investment

$$= \frac{\Delta Y}{Y} \Big/ \frac{\Delta I}{I} = \frac{\Delta Y}{Y} \cdot \frac{Y-C}{\Delta Y - \Delta C} = \frac{1-\dfrac{C}{Y}}{1-\dfrac{dC}{dY}}.$$

As wealth increases $\dfrac{dC}{dY}$ diminishes, but $\dfrac{C}{Y}$ also diminishes. Thus the fraction increases or diminishes according as consumption increases or diminishes in a smaller or greater proportion than income.

It is also obvious from the above that the employ-
ment of a given number of men on public works will
(on the assumptions made) have a much larger effect
on aggregate employment at a time when there is
severe unemployment, than it will have later on when
full employment is approached. In the above example,
if, at a time when employment has fallen to 5,200,000,
an additional 100,000 men are employed on public
works, total employment will rise to 6,400,000. But
if employment is already 9,000,000 when the additional
100,000 men are taken on for public works, total em-
ployment will only rise to 9,200,000. Thus public
works even of doubtful utility may pay for themselves
over and over again at a time of severe unemployment,
if only from the diminished cost of relief expenditure,
provided that we can assume that a smaller proportion
of income is saved when unemployment is greater; but
they may become a more doubtful proposition as a state
of full employment is approached. Furthermore, if
our assumption is correct that the marginal propensity
to consume falls off steadily as we approach full employ-
ment, it follows that it will become more and more
troublesome to secure a further given increase of
employment by further increasing investment.

It should not be difficult to compile a chart of the
marginal propensity to consume at each stage of a trade
cycle from the statistics (if they were available) of
aggregate income and aggregate investment at suc-
cessive dates. At present, however, our statistics are
not accurate enough (or compiled sufficiently with
this specific object in view) to allow us to infer more
than highly approximate estimates. The best for the
purpose, of which I am aware, are Mr Kuznets' figures
for the United States (already referred to, p. 103 above),
though they are, nevertheless, very precarious. Taken
in conjunction with estimates of national income these
suggest, for what they are worth, both a lower figure
and a more stable figure for the investment multiplier

than I should have expected. If single years are taken
in isolation, the results look rather wild. But if they
are grouped in pairs, the multiplier seems to have been
less than 3 and probably fairly stable in the neighbour-
hood of 2·5. This suggests a marginal propensity to
consume not exceeding 60 to 70 per cent—a figure
quite plausible for the boom, but surprisingly, and, in
my judgment, improbably low for the slump. It is
possible, however, that the extreme financial con-
servatism of corporate finance in the United States,
even during the slump, may account for it. In other
words, if, when investment is falling heavily through a
failure to undertake repairs and replacements, financial
provision is made, nevertheless, in respect of such wast-
age, the effect is to prevent the rise in the marginal pro-
pensity to consume which would have occurred other-
wise. I suspect that this factor may have played a
significant part in aggravating the degree of the recent
slump in the United States. On the other hand, it is
possible that the statistics somewhat overstate the de-
cline in investment, which is alleged to have fallen off
by more than 75 per cent in 1932 compared with 1929,
whilst net 'capital formation' declined by more than 95
per cent;—a moderate change in these estimates being
capable of making a substantial difference to the multi-
plier.

<div align="center">VI</div>

When involuntary unemployment exists, the mar-
ginal disutility of labour is necessarily less than the
utility of the marginal product. Indeed it may be
much less. For a man who has been long unem-
ployed some measure of labour, instead of involving
disutility, may have a positive utility. If this is
accepted, the above reasoning shows how 'wasteful'
loan expenditure[1] may nevertheless enrich the com-

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[1] It is often convenient to use the term 'loan expenditure' to include
the public investment financed by borrowing from individuals and also

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munity on balance. Pyramid-building, earthquakes, even wars may serve to increase wealth, if the education of our statesmen on the principles of the classical economics stands in the way of anything better.

It is curious how common sense, wriggling for an escape from absurd conclusions, has been apt to reach a preference for *wholly* 'wasteful' forms of loan expenditure rather than for *partly* wasteful forms, which, because they are not wholly wasteful, tend to be judged on strict 'business' principles. For example, unemployment relief financed by loans is more readily accepted than the financing of improvements at a charge below the current rate of interest; whilst the form of digging holes in the ground known as gold-mining, which not only adds nothing whatever to the real wealth of the world but involves the disutility of labour, is the most acceptable of all solutions.

If the Treasury were to fill old bottles with banknotes, bury them at suitable depths in disused coalmines which are then filled up to the surface with town rubbish, and leave it to private enterprise on well-tried principles of *laissez-faire* to dig the notes up again (the right to do so being obtained, of course, by tendering for leases of the note-bearing territory), there need be no more unemployment and, with the help of the repercussions, the real income of the community, and its capital wealth also, would probably become a good deal greater than it actually is. It would, indeed, be more sensible to build houses and the like; but if there are political and practical difficulties in the way of this, the above would be better than nothing.

The analogy between this expedient and the gold-

any other current public expenditure which is so financed. Strictly speaking, the latter should be reckoned as negative saving, but official action of this kind is not influenced by the same sort of psychological motives as those which govern private saving. Thus 'loan expenditure' is a convenient expression for the net borrowings of public authorities on all accounts, whether on capital account or to meet a budgetary deficit. The one form of loan expenditure operates by increasing investment and the other by increasing the propensity to consume.

mines of the real world is complete. At periods when gold is available at suitable depths experience shows that the real wealth of the world increases rapidly; and when but little of it is so available our wealth suffers stagnation or decline. Thus gold-mines are of the greatest value and importance to civilisation. Just as wars have been the only form of large-scale loan expenditure which statesmen have thought justifiable, so gold-mining is the only pretext for digging holes in the ground which has recommended itself to bankers as sound finance; and each of these activities has played its part in progress—failing something better. To mention a detail, the tendency in slumps for the price of gold to rise in terms of labour and materials aids eventual recovery, because it increases the depth at which gold-digging pays and lowers the minimum grade of ore which is payable.

In addition to the probable effect of increased supplies of gold on the rate of interest, gold-mining is for two reasons a highly practical form of investment, if we are precluded from increasing employment by means which at the same time increase our stock of useful wealth. In the first place, owing to the gambling attractions which it offers it is carried on without too close a regard to the ruling rate of interest. In the second place the result, namely, the increased stock of gold, does not, as in other cases, have the effect of diminishing its marginal utility. Since the value of a house depends on its utility, every house which is built serves to diminish the prospective rents obtainable from further house-building and therefore lessens the attraction of further similar investment unless the rate of interest is falling *pari passu*. But the fruits of gold-mining do not suffer from this disadvantage, and a check can only come through a rise of the wage-unit in terms of gold, which is not likely to occur unless and until employment is substantially better. Moreover, there is no subsequent reverse effect on account of provision for

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user and supplementary costs, as in the case of less durable forms of wealth.

Ancient Egypt was doubly fortunate, and doubtless owed to this its fabled wealth, in that it possessed *two* activities, namely, pyramid-building as well as the search for the precious metals, the fruits of which, since they could not serve the needs of man by being consumed, did not stale with abundance. The Middle Ages built cathedrals and sang dirges. Two pyramids, two masses for the dead, are twice as good as one; but not so two railways from London to York. Thus we are so sensible, have schooled ourselves to so close a semblance of prudent financiers, taking careful thought before we add to the 'financial' burdens of posterity by building them houses to live in, that we have no such easy escape from the sufferings of unemployment. We have to accept them as an inevitable result of applying to the conduct of the State the maxims which are best calculated to 'enrich' an individual by enabling him to pile up claims to enjoyment which he does not intend to exercise at any definite time.