

DEFICITS AND THE SIMPLE THEORY OF EFFECTIVE DEMAND

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Modern economies appear to be subject to strong fluctuations in demand. Moreover, there do not appear to be, in the modern world, any strong, market-based forces leading to stability. Investment spending appears to be a major source of demand variation, as Keynes and post-Keynesians have long argued against conservative and mainstream opposition. Yet if the purpose of investment were simply a corrective, moving the actual capital/labor ratio to its ‘optimal level’, stabilization would hardly be needed. Such a long-run position would be stationary, or, if the labor force were growing, the economy would expand uniformly. This is the picture presented by conservative neo-Classical theory, articulated, for example, by Hayek (1941) and, later, Lucas and the New Classicals.

But both Keynes and the older Keynesians, and the Classicals, especially Ricardo and Marx, but also heterodox writers like Henry George, offer a different view: investment is the accumulation of capital, a process by which productive power is created, organized and managed. It is driven by the desire for power and wealth, and there is no definable ‘optimum’. Investment expands productive power – “progress” - but does not move the economy towards any definite destination, though its direction may head toward poverty! Given such motivation and paradox, and depending on the important role of technological innovation, the urge to invest will sometimes be strong and widespread, but at other times weak and uncertain. To counteract such weakness arising from the demand side there may be a need for stabilizing policies.

How then can such policies work? First, we will examine aggregate demand with respect to households and firms, setting the impact of Government to one side. This is not

a ‘simplification’; it is a first step. In post-War Mass Production economies (Nell, 1998), constant returns appear to prevail in the short run; to put it differently, unit costs appeared to be broadly constant¹. The shift to Mass Production brought significant changes to the workplace. In earlier eras, operating Craft technologies, skilled and experienced workers were often essential, work crews and their morale could be crucial, and costly to break up, processes had to be operated more or less at full or nearly full capacity – or shutdown altogether. But shutdown and startup costs were often substantial. By contrast after the shift workers needed only be semi-skilled and work-teams could easily be broken up and re-formed; processes could now be operated at varying levels of intensity in response to variations in demand, and they could easily be shut down and started up. It likewise became easy to layoff

¹ The widespread existence of constant unit costs came to light beginning with the debate on prices and pricing in the 1930s and 40s, cf. Hall and Hitch, 1938, Andrews, 1949.. It seems that constant costs were the result of technological developments in manufacturing processes (Hunter, 1985). The evidence for constant costs is summarized and discussed in La voie, 1995, Ch. 3.

and recall workers, as demand fluctuated. But laid-off workers reduced their spending, exacerbating the demand shortfall, while recalled workers increased their spending. The variation in employment in response to demand fluctuations intensified the effects. Let's examine this.

Aggregate demand and the multiplier

We will make use of the following ideas, all suggested in one place or another in many post-Keynesian writings:

--aggregate output is a simple linear function of the level of aggregate employment, given the presently existing productive facilities. That is, these facilities operate at constant marginal productivity as their degree of utilization varies. The implication – supported by many empirical studies – is that marginal and average variable cost curves have long flat sections.

--household consumer spending depends largely on current household wage income; all household income is spent. This is a first approximation, but it is not far off the mark; more elaborate theories fail badly.

--investment planning, depending largely on long-run expectations (and therefore uncertain), must be distinguished from current investment spending – they depend on different variables. Investment spending, filling in earlier plans, will depend current conditions and on ‘animal spirits’-- as a first approximation this can be taken as autonomous. Interest rate effects can be taken into account, but they are unreliable.²

--income consists of wages and profits;
expenditure consists of spending on consumption and investment

--the money wage is given at the outset; wages are paid in money and the price level will be taken as given also, until the question of inflation is reached.

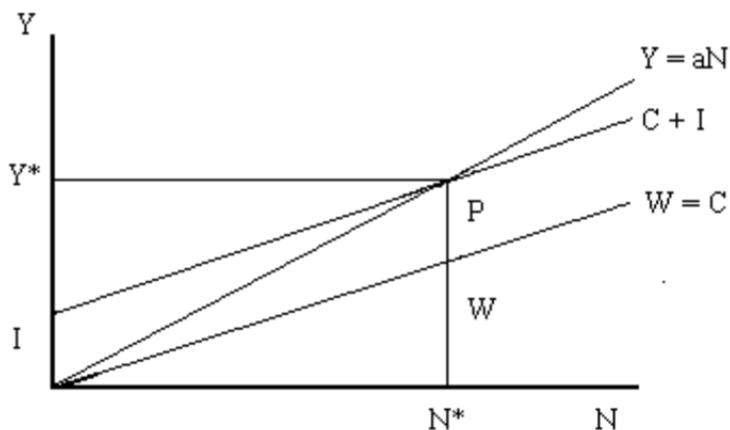
² “Keynes’ contention was that a *fall* in the rate of interest relative to *given* expectations of profit would, in favorable circumstances, *increase* the rate of investment.” Joan Robinson notes that this fits into the analysis of cyclical movements, and adds, “But one thing he could never have said is that a permanently lower level of the rate of interest would cause a permanently higher rate of investment.” 1971, p. 83. She repeatedly comments on the weakness and unreliability of the relations between interest, money and investment. Nell and Errouaki, 2013, explore the distinction between reliable and volatile variables and relations. Nell, 1992, Ch and 1998, Ch. develop the distinction between investment plans and investment spending.

These propositions *abstract* very significantly from reality. Many important features of the economy are left out or smoothed over. But long ago (1937) Joan Robinson proposed, and we can easily see, various ways to relax these abstractions. Output could be disaggregated, for example, into investment and consumption goods, (cf. Keynes in the TREATISE) and each could be disaggregated further (Lowe, Nell, Hagemann, Kurz). Increasing or diminishing returns could be explored (Nell, Meade). Workers could be assumed to save (Pasinetti and later on here); other categories of income can be added; besides workers and firms we may wish to add other categories of agents, e.g. landlords and rents. And so on.

Equally important, in contrast to much economic theorizing, nothing has been *idealized*. No agents are assumed to have superhuman powers, or supernatural foresight; no processes are assumed to work in unimaginably perfect ways; no adjustments are instantaneous.

Here is how it looks when diagrammed (we do ignore lumpiness and discontinuities):

**Figure
1**



The diagram is based on an aggregate utilization function (higher employment means higher utilization of production facilities): here the Mass Production economy will be characterized by a straight line rising from the

origin. Output, valued in real terms and equal to incomes (wages plus profits), is measured vertically, employment horizontally. As a first approximation Consumption can be identified with wages and salaries, while Investment can be taken as exogenous. As employment rises, the wage bill (including managerial salaries) will rise at a constant rate, namely the normal wage rate. The wage bill - assumed equal to Consumption spending - is represented by a straight line rising to the right from the origin; its angle is the wage rate. Investment spending will be treated as exogenous in the short run, so will be marked off on the vertical axis. Aggregate demand will then be the line $C+I$, rising to the right from the I point on the vertical axis; its slope is the wage rate.

The origin, here and in later diagrams, is the point at which labor cost absorbs all output, i.e. economic subsistence. That will be the point of 'zero' employment, meaning we are only concerned with employment above that minimal level. Such employment, in such an

economy, will depend only on effective demand; there is no marginal productivity adjustment.³ Output will increase with the amount of labor employed (capacity utilized); all and only wages will be spent on consumption, and all profits will be saved as retained earnings. Investment can be taken as exogenous as a first approximation.⁴ (But defining an ‘Investment function’ will prove problematical, since Investment is building capacity for the future – and the future is irredeemably uncertain.) Expenditure is given by the $C + I$ line. (This ignores G , government spending, for the moment; in fact, it is very important -- in the modern world it will be much greater than in the earlier forms of the capitalist

³ That is, employment is *not* determined in the labor market. It follows directly from the demand for output, given the output-employment function – as in Kalecki. Hicks, following Keynes, initially modeled effective demand by setting up the IS-LM system together with a labor market and a conventional production function. Later he came to feel that this was a mistake (Hicks, 1977, 1989).

⁴ On these assumptions Investment determines – and equals – realized Profits. When households save a certain percentage out of wages and salaries the Consumption line will swing below the Wages line – Profits will be reduced. When wealth-owning households (or businesses subsidizing top managers) add to their consumption spending in proportion to the level of activity, this swings the $C + I$ line upwards, increasing Profits.

economy.) But the output function will be a straight line rising from the origin with a slope equal to the average productivity of labor. Suppose Investment is exceptionally high; then employment will be increased, and Consumption will also be exceptionally high. Conversely, if Investment is low, employment will be low, and thus so will Consumption. Consumption adjusts in the same direction that Investment moves.⁵ When investment rises, consumption, output and employment also increase in a definite proportion.⁶

Simple as this is, it provides us with a number of powerful insights. Admittedly, they are derived on the basis of very

⁵ The output multiplier in this simple example will be $1/(1-wn)$, where w is the real wage and n is labor per unit of output.

⁶ And money? An overly simple connection will be sketched shortly. The basic idea: Let household saving increase with the rate of interest (as consumer durable spending declines), while business investment declines as the rate of interest rises. (Neither influence is likely to be very great or very reliable.) We can then construct a downward-sloping function (an analogue to the traditional IS) relating the rate of interest, i , to employment, N . It will intersect a horizontal line representing the level of the rate of interest as pegged by the Central Bank; this will determine the level of employment. Not very plausible.

great abstraction, so they cannot be expected to prove literally true – but they may nevertheless give us genuine guidance in investigating the way the world works. For example:

- Investment and profits are equal here; this suggests that we should expect to find them closely correlated in practice – as we do. (Nell, 1998, Ch. 7; Asimakopulos, ...)
- Investment determines profits here; investment is the driving force. We should expect to find something like this in reality – which many studies suggest we do.
- The multiplier here will equal $1/(1 - w/a)$, where w is the real wage. That is, the multiplier will reflect the distribution of income, and will not be very large. Again this seems plausible.
- Employment is chiefly determined by the level of activity; it is not determined in the labor market.
- Real wages and the level of employment and output are *positively* related. This can be seen by drawing in a steeper wage line, with the same level of investment.

The C+I line with then also be steeper; so it will intersect the output line at a higher level of output and employment. In fact most empirical studies of the post-war era do find real wages and employment to be positively related. This suggests a very different picture of the labor market, its working and its (in)stability (Nell, ed. 1998; Blanchard and Fisher, 1989... Lavoie, 2004;)

- Household savings *reduce* output, employment and realized profits! (Obviously, qualifications are needed, and it must be remembered that this is a short-run analysis – but the long-run may never come! If this proposition seems hard to accept, think about Japan in the 1990s – and even recently.)
- Unemployment is indicated by marking off the level of full employment on the horizontal axis. It clearly results from deficiency in demand. That is, either investment is too low or wages are too low; which

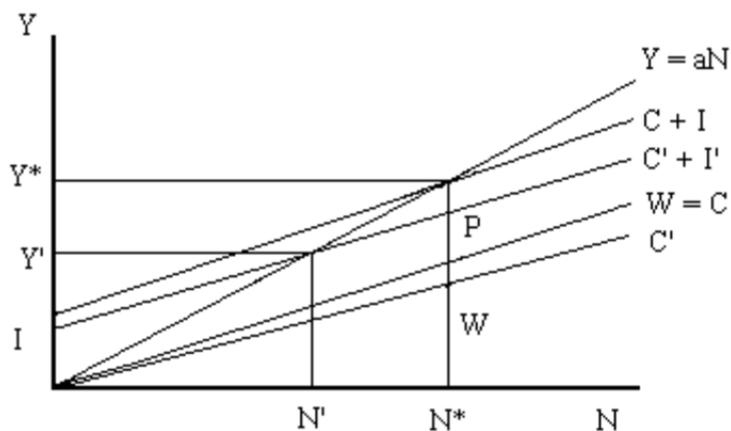
implies that unemployment can be reduced by increasing either.

The Monetary System

As indicated, this simple model is easily extended to include money and interest, albeit in a very rudimentary form. The rate of interest may be assumed to have some influence on both business and household spending. When interest is relatively high, businesses are likely to curtail or postpone investment projects, and households may cutback on consumer durables. Thus when interest rises the investment line will shift down to a lower intercept, while the households consumption line will swing down, reducing its angle. Similarly, of course, when interest rates are relatively low, investment and household spending will be correspondingly higher.

Fig.

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So a downward sloping demand relationship can be drawn relating I and N .⁷ To this we add a flat line, indicating the

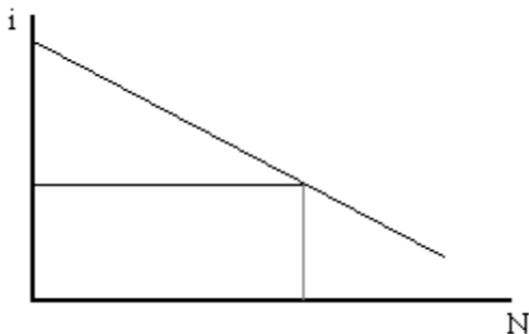
⁷ It is important to note – and early Keynesians like Joan Robinson always stressed this - that these relationships between interest rates and spending are *not* very reliable, unlike the relationships between employment and output, consumption and income and the other relationships derived from these, like the multiplier. (Cf Nell and Errouaki, 2013, pp) Businesses need not increase their spending when interest rates fall. For example, if future sales prospects do not look good, low rates will not lead businesses to spend on new capacity. What use is capacity, however cheap, if it's not going to be used? Similarly, households will not buy a new car, even if the payments are low, if they fear unemployment or hard times. And if profits are high, and prospects good, as in a boom, raising interest rates may not have much of a dampening effect. "Prospective profits are much influenced by optimism and pessimism of entrepreneurs,

interest rate chosen by the Fed. This reflects Joan Robinson's preferred approach. Referring to Keynes, "It would have been much simpler to start by assuming a constant rate of interest and a perfectly elastic supply of money. But then his whole case would have been dismissed as a misunderstanding of the orthodox position. He was obliged to accept the presumptions of his critics in order to explode them from within." 1971, p. 82.

The result is strikingly simple:

Fig.

6



and very violent changes in the rate of interest may be required to influence investment." Robinson, 1937, p. 63.

There is no supply and demand for reserves here, so there can be no ‘crowding out’ effects. Government deficits certainly do not drive up interest rates; indeed they have no impact so long as the rates are pegged. (Early Keynesians, including Joan Robinson, were not able to express this clearly, largely because they did not adequately model Government. Robinson did, however, see that interest rates responded to many conflicting influences, so the various rates would not always move together, and intervention would be needed to keep markets orderly).

In a nominal money system – where the money is acceptable because it is what taxes are paid in - the spending corresponding to deficits comes from money creation. That money will drive interbank interest rates *down* unless it is absorbed – ‘sterilized’ – by bond issues. This was recognized, although not stated properly, by Joan Robinson as early as 1937:

“The increase in the Quantity of Money, which takes place cumulatively as long as the deficit is running, will

tend to produce a fall in the rate of interest and (unless confidence has been badly shaken) ...an increase in investment, induced by lower interest rates, will be superimposed upon the direct effects of the budget deficit...” [JR on deficits, *Introduction to the Theory of Employment* , 1937, pp. 70-1]

Joan is not quite right here – the effect is on the interbank or overnight rate, and the aggregate excess reserves will tend to drive that rate almost immediately to zero; the reserves earn nothing, so anything above zero will be better. So this situation will not be – cannot be - allowed to continue. To maintain a positive interest rate the central bank and / or the Treasury will have to act, which means they *have* to peg the interest rate. Robinson did not explore the implications fully but she did explain in some detail how the Bank set the interest rate through open market operations. She had all the basic ideas now associated with MMT, although she did not draw out the implications.

Taxation

The Government spends and it also taxes, and this raises the question of what taxes are for. We all know that George Washington needed to pay his troops and that, because it could not raise taxes, the Continental Congress had to issue paper money, which depreciated rapidly. To effectively pay for Government spending, taxes needed to be collected, assembled and distributed to the appropriate agencies carrying out government projects. Taxes provided the funds – sometimes the actual coins -that government spent.

Summing up this, according to a longstanding and widespread view,

“Taxes are an essential part of a modern society: they pay for public services and for government. Proper debate about the nature and level of taxation is therefore crucial to the wellbeing of democracy itself.” (From p.2 of *PAYING FOR PROGRESS: A New Politics of Tax for Public Spending*, Fabian Society, London, 2000.)

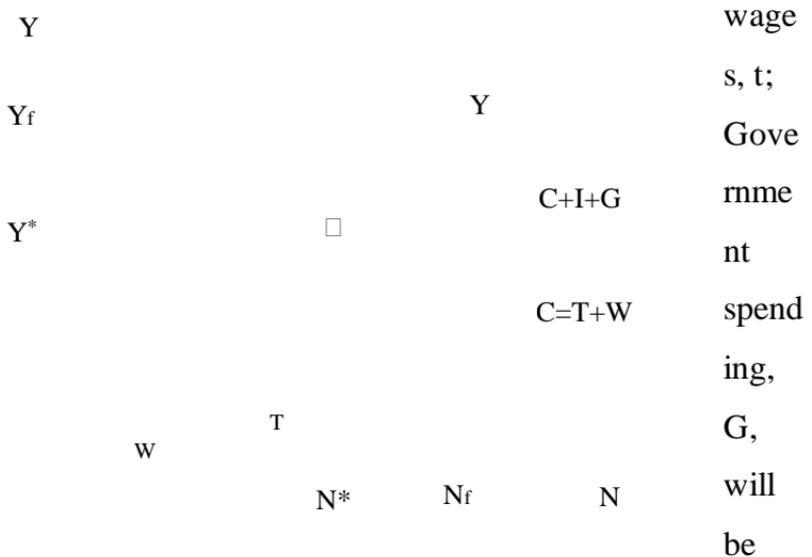
But in a modern, fully nominal money system, this is not true. Public services and government projects are paid for by money creation. Government can spend at once as soon as projects are authorized and appropriated; no need to see if money is ‘on hand’. Taxes, on the other hand, *cancel money*: paper bills submitted in payment of taxes are destroyed, and checks are credited to the Government account, which is not part of the money supply. Since taxes reduce the money supply, cancel money, they cannot ‘pay for’ anything.

The preceding quotation, therefore, would hold only in the past tense, referring to an economy with a metal-based convertible money, or operating as if it had such a currency. For today’s economy, it would have to read: “Taxes are an essential part of a modern society: they are an important part of financing public services and government, in the sense that they cancel money created by government for its spending. Such cancellation is essential to managing the rate of interest. They also reduce the spending or wealth of those taxed, which can be essential in preventing inflation. Proper debate about the nature and level of taxation is therefore crucial to

developing an optimal mix of methods for financing government.”

The Government Budget

This simple framework can help overcome the inadequate conception of the role of Government so prevalent in macroeconomics. Let us consider welfare payments which fall with rising employment, and taxes which rise with employment. Taxes may be levied at a fixed rate on



added on to investment, I . For given t and G and a given output function, whether the Government is in deficit or surplus will depend on investment and the real wage. Unemployment can be reduced or eliminated by

increasing G or lowering t . Fig 3: Employment and Output with 'Transfer' Payments

Government spending may be considered to be largely welfare payments to the unemployed. When employment is minimal, welfare payments will be maximal; at full employment they will drop to zero.

Introducing such welfare payments creates an automatic stabilizer that changes the way the Mass Production economy adjusts; it raises consumption at every level short of full employment, while reducing its range of variation. This can be seen in Figure 5, which plots income on the vertical axis and employment on the horizontal. Private employment runs from the origin to N_f here (and in subsequent diagrams.) At full employment, N_f , transfers will be zero; as employment

falls, transfers rise, until at zero employment transfers reach their maximum at the intercept of the line Tr . The aggregate household income function will be the sum of wages plus 'transfers', and by assumption, this will equal household consumption, $C = Tr + W$. When Investment (and Government spending on goods and services) are added, the result is aggregate demand, which intersects the utilization function to determine employment and output.

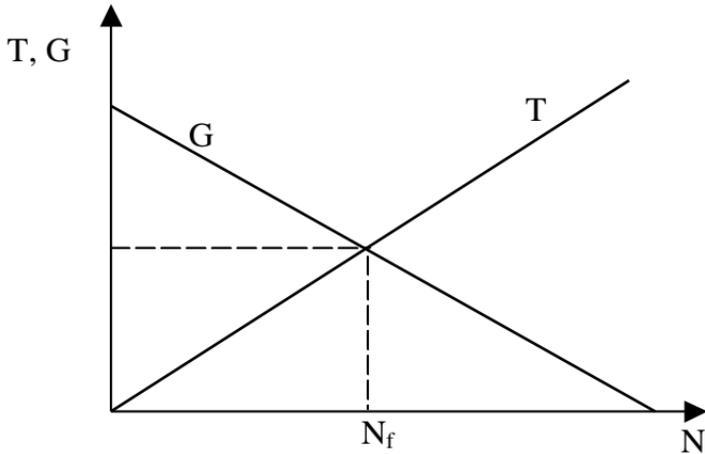


Fig 4: Government stabilization in the Mass Production economy

The budget itself can be illustrated: Tax revenues rise with N , and welfare spending falls. Rates are adjusted so the budget balances at full employment. If Investment spending falls below the level required for full employment, tax revenues decline and welfare spending rises, providing a stimulus. If Investment booms, taxes rise and spending falls, and the resulting surplus acts as a drag on the economy.

In the earlier Craft economy, a partially stabilizing Price Mechanism ensured that Investment and Consumption tended to move inversely to one another. This provided an automatic stabilizing adjustment. By contrast, in modern economies Investment and Consumption tend to move in the same direction, so that fluctuations are enhanced, rather than dampened. The system is volatile and will be even more so if Investment responds to changes in output through an accelerator.

But the Government budget automatically moves countercyclically; as unemployment rises in a slump, welfare spending rises and tax revenues fall, opening up a deficit.

Deficits

Now let's turn to a simple treatment of the deficit.

By assumption, $C = W(1-t) = W - T$

And $Y = C + I + G = W + P$,

$$W - T + I + G = W + P.$$

So canceling and re-arranging,

$$I - P = T - G,$$

Where 'w' is the wage rate and 'a' the productivity of labor, so that

$$P = Y - wN = aN - wN = (a - w)N$$

Then G_0 is autonomous Government spending, and 'g' the unit spending on unemployment (unit reduction in government spending when employment increases), so following the ideas above,

$$G = G_0 - gN$$

Then, let 't' be the tax rate, which falls wholly on wages, so

$$T = twN$$

Let I_0 be the given level of private sector Investment spending. Rewriting,

$$I_0 - P = T - G$$

$$I_0 - (a - w)N = twN - G_0 + gN$$

The LHS starts from a positive intercept, I_0 , and falls with a slope $-a+w$, where $a>w$. The RHS has a negative intercept, $-G_0$, and a positive slope, $tw+g$. The two lines will intersect at a level of employment given by

$$I_0 + G_0 = twN + aN - wN + gN = N(w(t-1) + a + g)$$

$$N^* = (I_0 + G_0)/[w(t-1)+a+g]$$

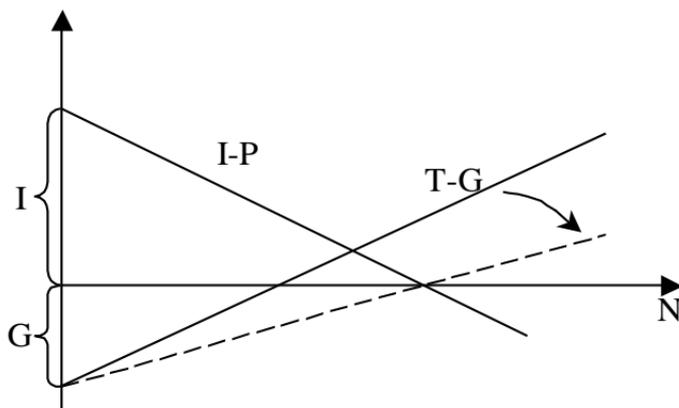
This is the level of employment determined by aggregate demand. If the intersection of the two lines occurs in positive space, then $I > P$, and $T > G$. There will be a private sector deficit – spending greater than revenue – and a public sector surplus. If the intersection occurs below the baseline, then $I < P$ and $T < G$, a private sector surplus and a public sector deficit. For the Government to be in balance, $T = G$, which implies,

$$N_{gb} = G_0/[tw + g],$$

But there is no reason to suppose that N_b will equal N^* . For that to hold it would be necessary also that $I = P$, which implies

$N_{pb} = I_0/[a-w]$. So $N_{gb} = N_{pb} = N^*$, and this requires
 $I_0/G_0 = (a-w)/[tw + g]$

Normally, then, N^* will not be at the point where $T = G$, nor is there any particular merit in that position. Much more important is N_f , the level of full employment. The proper goal of short run policy should be to bring about $N^* = N_f$, regardless of the relationship between T and G .



Taxes on Profits

Instead of taxes falling on wages, suppose that taxes fall on profits, at a fixed rate, t . Profits are a ‘withdrawal’, so the tax does not reduce any form of

expenditure; that is, since it falls on funds already taken out of circulation, it has no effect on spending. Aggregate expenditure will be $E = C+I+G$, which in turn will equal Output = Income = $W+P$; so on our assumptions, since $C = W$,

$$P = I+G.$$

The whole government expenditure, G , adds to pre-tax profits, which means that it increases employment and output. Output, Y , and the associated level of employment, N , will be those corresponding to a level of demand equal to $C+I+G$, (rather than $C+I+G-tP$.)

Deficits and Financial Markets

Now consider what happens to banking when the system faces a deficit. Deficit spending provides a stimulus, proportional to the difference between injections and withdrawals. But the effect of the deficit spending is to inject a pool of newly created money to the banking system. This will tend to drive down the overnight interest rate (the Federal Funds rate in the US.) To

maintain this rate the Fed must sell bonds to sop up these excess funds. This it does automatically, since it is pegging the rate.

Chartalist thinking has commonly stopped at this point (Wray, 1998, Ch. 4; Nell and Forstater, 2003, Chs. 10, 11, 12). But there is a further step to be considered. The Fed's action in mopping up the excess funds has now left the investing community with additional short bonds (or Treasury bills) in its portfolio. Normally, the desire to spread risks will lead to a desired composition of portfolios, in which securities with varying yields and different risks are mixed; this composition will be a matter of percentages. Investors will want to hold a certain ratio of short-term securities to long term, for example.⁸ If previously they were satisfied with their

⁸ Consider a simple portfolio analysis. Suppose there are three assets, a safe, because pegged, short security, a market determined long bond, and equities. Under various circumstances we know what the yields (including capital gains and losses) will be for each, and we can make subjective probability estimates for the various circumstances. The yield in each circumstance together with the

relative holdings of short bonds, long bonds and equities, they will now find themselves holding an excess of short term instruments. The normal expectation would be that they would tend to sell these, until the price had fallen far enough to induce the market to absorb these additional bonds. That is, selling the short-term bonds would lead short-term interest rates to tend to rise, making them more attractive.⁹

probability of those circumstances gives the prospect of the security. But besides the prospects for the securities, investors must consider risks; each security has certain risks, but an investor is most concerned with the overall risk position of the portfolio. Investors will construct portfolios by choosing the combinations of assets that maximizes the total prospect of the portfolio, subject to the risk. They will not put everything into the security that has the most probable highest yield, because it may also carry a risk of a large loss. So they will diversify, in order to minimize risk. As the holding of one asset relative to the rest increases, its marginal advantage declines (too many eggs in that basket.) Holdings will be adjusted until the marginal advantages of all assets are equalized; long bonds and equities will be acquired until their respective marginal advantage has fallen to the level of the pegged short rate. (Hicks, 1967, pp.19-26)

⁹ A higher short-term rate would mean that the marginal advantage curves of the other assets would not fall so low, indicating smaller relative holdings of those assets.

But this cannot happen since the short rate is pegged. Nevertheless, the ratio of short bonds to long assets is out of line with the desired ratio, calling for an adjustment. The *relative* price of short-term securities must fall, to enable them to be absorbed. This can happen through a rise in the price of long term assets (fall in long rates). That is, the sale of excess short term securities leads to bidding up the prices of the long-term securities. In other words, pegging the short rate means that all other assets will rise in price.

We need to examine how this works more closely.

Suppose we have a market with

Short bonds: B_S

Long assets, bonds and equities: $LB + EQ = A_L$

The desired ratio of short bonds to long assets:

$$(B_S/A_L)^* = f^*$$

The initial price of A_L will be taken as 1

Let B_S be the initial quantity of short bonds, and ΔB_S the bonds covering the deficit spending¹⁰. A_L is the initial holding of long assets and f^* is the desired ratio of short bonds to long assets, equal to the initial position. Funds will switch towards buying long assets, in order to restore the desired ratio, f^* , after an infusion of short bonds due to deficit spending. This will drive up the price of long assets.

$$[B_S + \Delta B_S]/A_L(1 + \Delta p_{AL}) = f^*,$$

so that,

$$\Delta p_{AL} = \Delta B_S/B_S.$$

A rise in p_{AL} , of course, is equivalent to a fall in i_L . (The actual yield is the face value yield divided by the price.)

But this takes f^* as given, fixed by risk aversion and long-term expectations. Driving up the price of long assets

¹⁰ If part of tax revenues came from taxes on profits or on capital gains, such funds are withdrawals from the financial markets. So they must be subtracted from the funds corresponding to the deficit, which are now being injected into the financial market.

means lowering the yield of long bonds and lowering the yield on equity. If the current long rate changes, this should have implications for f^* . In general it would be reasonable to expect that a lower long rate, relative to the short, would raise f^* .

We can write

$$f^* = f(i_S/i_L), f' < 0$$

Together with the identity connecting asset prices and interest rates, this gives two equations for the two unknowns, p_{AL} and f^* . As the deficit rises, the prices of long assets will rise, bringing down their yields, so that the desired ratio of short to long assets will rise.

If the change in the price of long assets is large enough the effect will be to invert the yield curve. For this to be on the margin of taking place, the proportional change in the price of long assets would have to equal the difference in the long and short rates, remembering that the initial price was 1:

$$i_L - i_S = \Delta p_{AL} = \Delta B_S/B_S .$$

If the sale of short bonds necessary to restore f^* is any greater than this, the result will be an inversion of the yield curve. If the risk-and-liquidity-adjusted equity yield is equal at the margin to the long rate, then it, too, will fall to the level of the pegged short rate, so that there is a general lowering of interest rates other than the one pegged by the monetary authorities.

The Treasury, at weekly auctions, will offer short bills and bonds, offering longer bonds at monthly auctions, and sometimes setting up special auctions. Initially, the Fed drains the excess reserves corresponding to the deficit by taking them as an overnight loan for interest; but such loans are repaid the next day and so have to be repeated. To drain the funds permanently, the Treasury must offer a bond. The authorities will offer a mix of long and short bonds, not just short, in order to provide the market with a variety of options. But the Treasury has a target average maturity, so this will constrain the mix it can offer.

*Banks will initially dispose of their overnight holdings,

but wishing to remain liquid, will tend to switch into various short securities. But at this point the market will have an excess of short securities, whose yields, closely tied to the overnight rate, cannot easily fall. These will be used to buy longer bonds, driving up their price, and lowering their yield.

The Treasury could anticipate the impact of the deficit and issue a sufficiency of long bonds in advance, leaving it to the Central Bank to manage the overnight rate. Such a strategy might be expected to minimize the impact of the deficit on the yield curve. But the Treasury is not supposed to be actively targeting the long rate.

In any case, whatever the combination of long and short that the Treasury sells to absorb the excess reserves created by the deficit, they are still *Treasuries*. That is, they are safe securities. So even if the term structure of securities supplied is the same as that preferred by the market, the securities will all be safe; but the market will

want the proportion of risk it previously had. So it will use the safe securities to purchase riskier ones, lowering the former and driving up the prices of the latter. *Spreads* will therefore narrow.

Implications

Conventional theory holds that while deficits lead to expansion in the commodity and labor markets, they tend to drive up interest rates, thus setting up offsetting contractionary forces in financial markets. The case can be argued for monetary systems based on real reserves – gold and silver (Nell, 2005). But when the monetary system is nominal, based on taxes, and with interest rates that are pegged, this is not so. Deficit spending creates excess reserves, tending to drive down the overnight rate; to keep interest rates positive this has to be sterilized by a bond sale. But then investors will have more short bonds than they desire; since the short bond prices are pegged, the only way this can be absorbed is through a general rise in all other asset prices. So the average rate of interest

will tend to decline, and financial market will tend to boom. The overall effect will be expansionary.

But if the deficit is large, it could also lead to irregularities, even turmoil, in financial markets. Specifically it could result in an inversion of the yield curve, and lead to excessive –very likely unsustainable - price-earnings ratios. Of course, the authorities could lower the pegged rate, but in certain circumstances there could be reasons against that – lowering interest rates in the face of a deficit-driven expansion might tend to feed ‘irrational exuberance’, an asset price boom. The authorities could issue new long-term bonds, or intervene in the long-term market, in effect swapping long securities for short. But that would mean operating to peg the yield structure, not just the overnight rate – a commitment governments and central banks have sought to avoid. In other words, even in the short run, there may be pragmatic limits to deficit spending – although it has to be recognized that these limits depend on self-imposed

restraints on the part of the monetary authorities. There are no ‘dangers of the deficit’, just monetary matters to be managed.

But the change from a monetary system anchored to real assets to a purely nominal one loosens the ties between monetary variables and the real economy.

Financial-Real Interaction and Cycles

Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is different when enterprise becomes the bubble on a whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done. J M KEYNES

The financial sector used to be (and still should be) the servant of the real side of the economy, gathering together small individual savings to make large investments; instead, it has become the master,

absorbing money and resources that could be invested in expanding real capacity but are now going into speculation. The modern financial sector has in effect become the monopoly supplier of money and credit.

To make a long—very long—story short, the transformational growth of the financial system has absorbed the real estate sector, and now the control of money and credit has replaced ownership of land as the barrier preventing the spread of the benefits of increased productivity. The US financial sector has grown from a single-digit share of the economy to almost one-fifth since the end of World War II. The bulk of that expansion occurred since 1980, during which time a sharp and parallel rise in inequality took place.

The Question of Real-Financial Linkages

The foundation of the financial sector consists of claims against the earnings of the real side of the private sector, or title to the real productive facilities and inventories of

capital and consumption goods of that sector. These claims are traded in markets for financial assets. It makes intuitive sense to think that the value of the productive capacity of the private real sector should be the same as the total value of the claims in equilibrium to that capacity¹¹, a ratio known as Q:

$$Q = (\text{financial value of claims}) / (\text{real value of productive assets}) = 1$$

In fact, Q generally does not equal 1, and we will be concerned to explain why and what the implications are. However, we will define our concepts somewhat

¹¹ And what about Government bonds? Should they be counted among the claims against private capital? Taxes on the output and income of the private sector appear to pay the Government's debt servicing. Government output consists of public goods and services, for which we have no adequate measures. But as Henry George (1879) pointed out, Government and goods services are necessary for growth (and its externalities may account for the Equity Premium). In any case, for our purposes here, it doesn't matter which way we draw the accounts, so long as we draw them consistently: there will be a "normal" ratio of total claims to total real assets, and our analysis will describe the unstable and erratic fluctuations of Q around that normal ratio.

differently from the way they appear in studies of Tobin's Q, although we will continue to use the symbol "Q." Heilbroner, it has to be said, had little or nothing to say about this idea.

It should be clear that the financial sector is independent, on a day-to-day basis, from the "real" sector. The prices and quantities of stocks on the stock market are not closely tied to the operations of business. Put another way, the value of claims to a business does *not* directly depend on the degree of success of the current operations of that business—it may depend as much, or more, on the opinions of players in the stock market about what average market opinion regarding that business will be, especially regarding its future. It could be said that a key feature of the "post-Vietnam/post oil shock" financial system is that in day-to-day operations it is strikingly independent of the real economy, and along with this, it is widely given to speculation. (With all of this Heilbroner, for example, would have agreed, but he would have argued that because of the lack of linkage, financial

activities are not important to the development of the system.) Of course, any investment involves making a gamble: for instance, betting on the success of a new technology (a matter of science); or that you can outcompete a rival (a matter of business acumen); or that consumers will love the new product (a matter of design). In each case, the bet involves building or developing something. Now compare this kind of investment to betting on stocks and shares, which involves not building, but buying paper claims based (as Keynes famously noted) “on what average opinion thinks average opinion will be,” or on what a statistical analysis says about the fluctuations of stock prices—in any case, nothing *real*, nothing that involves production or contributes to economic well-being, need be involved. (Heilbroner was very interested in the first kind of investment betting, but always deplored the second.)

It used to be that the purpose of the financial markets was to mobilize savings, and to package them so that firms could borrow them, or trade shares for them, to

finance real-side investment. That is, banks and financial institutions and markets mobilized savings to build productive capacity, or to set up department stores and shopping malls, or to establish marketing, transport, or advertising services. Now, however, this sort of thing is said to comprise about 15 percent of total financial sector activity. The rest is competition for corporate control, or sheer speculation—especially speculation in real estate. As Adair Turner (2016) and Michael Hudson (2015), have shown, a very high proportion—ranging between 35 percent and 60 percent—of new bank lending is for the purpose of real estate dealing, not for investment in new enterprise or additional capacity.

The real sector—production, income payments, both household and business expenditure, and savings and investment—is usually, following Keynes, seen as connected to the financial sector through the long-term interest rate on loans to finance investment. This is much too simple and is based on an inadequate

conception of interest rates—e.g., spreads are sometimes as important as levels. Moreover, there have been many unsound ideas or poorly defined relationships suggested to explain how financial markets interact with the “real” economy. Keynes accepted the idea that interest rates influenced investment to a degree that does not seem to have been consistent with the evidence even then, let alone today. Friedman famously claimed that the quantity of money directly affected demand—with an unexplained “variable lag”—and that the resulting impact of demand would affect both real income and the price level. The determinants of the split between the two were never clarified, but the price level effects were expected to morph into inflation. Patinkin (1965) maintained that “real balance effects” (where an overall fall in average prices during a downswing raises the value of money) could or would restore full employment (because money holdings would now be worth more, which should promote spending by households and business). But with a general fall in prices the burden of debt becomes greater,

which should lead to belt-tightening. In any case very little convincing evidence can be found for any of these claims. All these ideas were immensely influential, but they were not well grounded in theory, nor were they clearly evident in statistics, as the endless disputes showed. Mainstream economists held that financial growth supported and stabilized the real economy, while many critical economists, like Heilbroner, did not seriously discuss the connections between the real and the financial sides of the economy (cf. his books on capital and capitalism)—and his textbook presents a largely cursory, mostly Keynesian picture of liquidity preference determining ‘the’ interest rate.

Let’s take a quick look at the working of today’s financial system. How and why are stocks and bonds issued, how and why are they held? And what is the ratio between them, that is, what is the debt structure of the economy—and why does it matter?¹² We will see that

¹² Modigliani and Miller in a famous series of papers (1958; 1963) claim that capital structure does not matter and that an optimal debt-equity ratio does not exist. But their alleged “proof” of this

while D/E –i. e., Debt/Equity - is a financial variable, it requires real resources to establish and maintain it.

Let us again consider an “overall portfolio,” that is, an aggregate of portfolios, under stable and normal conditions, where holdings have been “optimized” in the light of risk and price/earnings (P/E) ratios, and investors are satisfied. All stocks and bonds that have been issued legitimately are held in portfolios voluntarily; no one is holding any securities because they were unable to find a market for them. Short-term securities, long-term securities, and rent-based securities are all settled in comfortably at the conclusion of a “period”—say, at the year’s end, when audits are taken everywhere.

assumes that, although there is uncertainty, markets are “perfect,” and all investors have the same full information and form the same expectations, including the shared expectation that all current profit streams will continue indefinitely, unchanged, i.e. no defaults. In fact, markets fluctuate all the time, in waves of optimism and pessimism, and default risk is serious. Moreover, equity is ownership, and the question of “diluting ownership” is important in deciding to issue stocks. Modigliani-Miller is divorced from reality (Allen, 1985).

In these circumstances, consider the impact of growth from one period to the next. To keep the story simple, let's assume that growth in the real side of the economy is "balanced": all sectors expand in the same proportions, C, I, and G all expand together, and wages and prices are steady, so that initially, at least, everything remains in equilibrium. For simplicity, we can assume that profits are generally saved (except for some luxury consumption), while wages are chiefly consumed—workers also save, and therefore have wealth holdings. Profits will be paid out as dividends and interest. Provisionally, we will adopt the convention that rents, held in higher-income portfolios, are spent on luxury consumption. Savings and investment will be equal.

To examine the impact of this growth on the financial side, we have to analyze two cases, here taken as pure, but which obviously can be mixed together:

First, *balanced financial expansion*—meaning that the new growth is financed with the same ratio of debt to equity as in the previous period, so that equity prices will

be the same and interest rates will be unaffected, ensuring that bond prices will hold steady. Firms pay out all profits in interest and dividends, and then borrow back the funds by issuing new bonds and new stock certificates.

Quantities of stocks and bonds will thus increase in exact proportion to the increases in real investment, but the ratio of stocks to bonds will not be affected. The P/E ratios of both stocks and bonds will also be unaffected.

This might seem a safe and desirable position, a financial equilibrium built on a real equilibrium, but as any reader of the financial pages (or Henry George) will know, that is not what we really have. *Growth increases real estate values*, and most mainstream economists ignore rents and think of real estate as just a form of capital. This misses a major point: in equilibrium the portfolios all contain, or could contain, real estate-based securities, whose P/E ratios will have fallen. The portfolio balances will be upset; if they were in equilibrium before, they will have to be adjusted, since a large class of securities now has lower P/E ratios but (based on the

premises of this model) unchanged risk. Holding more of these securities will be called for; portfolios can therefore be expected to sell off some of their other holdings to buy more rent-based securities. Also, such securities will be worth more as collateral; likewise, such securities held by banks will be worth more, thus increasing bank capital and permitting more loans. As a result, money for asset buying and selling will be increased.

But “adjusting portfolios” means selling off shares, and this will tend to depress share prices. This may be offset in part by new money coming into the market, but firms that do not want to see their shares fall will adopt strategies to prevent this, as we shall see.

Second, *bonds and self-financing*—meaning that firms would continue to issue debt as before, but instead of paying out dividends they would finance investment by retained earnings: no new shares would be issued, but profits would go directly to investment, in the expectation that existing shares would rise in price (“growth stocks”). Assuming that profits are the “right amount,” the increase

in share value would mean that the overall debt/equity (D/E) ratio would remain unchanged. But the situation is not so simple; the existing shares would initially be unaffected, although they would constitute a fixed set of claims to a larger productive capacity—but still priced as before. This is equivalent to a lower P/E ratio. An appropriate rise in share value will mean that equity rises to keep pace with the new bonds; but for shares to rise in price to reflect the fact that they represent claims to increased productive capacity there will have to be market pressures, which means that portfolios will have to be adjusted.

Again, the rent-based securities have experienced a rise in the underlying real earnings, so their P/E ratios are down. In short, this case is also an unstable position: both equity prices and rent-based security prices have to rise. But the equity is a claim to a larger or improved *real* asset, which should (eventually) result in higher earnings, assuming the expansion/ improvements were wise; the real estate security is a claim to exactly the same real asset

as before, although it is earning more now, right now. Portfolio managers will typically look carefully at real investments, especially if they don't know the business well, but when they see rents going up, if the location is good, they are likely to consider it a good sign. It is likely to be easier for real estate securities to rise than for growth stocks. Portfolios will have to sell off securities or borrow against them to buy the securities with lower P/E ratios. This may cause turmoil¹³. Banks, however, will eventually find themselves holding more valuable

¹³ Could these adjustments be made quickly, moving to a new equilibrium? It is unlikely, but possible that the increases in productive capacity could be foreseen with accuracy—after all, the investment plans have been formed carefully, well in advance—so that a rational expectation could be formed of what the increased value of the claims to the new capacity should be. If everyone held the same expectations, then very little would be required in the way of market pressures to drive up share prices by the right amount. This is a fantasy: everyone does not hold the same expectations, and there is no guarantee that the expectations will be correct. We wouldn't invest in it if we didn't expect the new technology to work—but it very often doesn't. Even if it did, our forecasts of how profitable it will be may prove far from accurate. Realistically, the adjustments cannot be made smoothly, and the fact that the rise in rent-based securities will increase both the value of collateral and the value of bank capital will threaten to set off a “positive feedback” cycle of asset price increases followed by bank lending expansion, followed by more asset price increases.

securities, so they will be able to make more loans, and spending from these will further drive up security prices.

The point is, starting from an “equilibrium” balance between steady growth in the real economy and portfolio equilibrium on the financial side, a process of adjustment *has to take place* that will tend to generate destabilizing movements. The system cannot remain in equilibrium. (This is consistent with Minsky, but is overlooked or denied by the mainstream.)

Look back at savings and investment: savings are made, investors issue stocks and shares—and bonds—to obtain the savings, and they then spend the saved funds on capital goods. So real investment—expansion of productive capacity—is matched by an increase in the amount of securities outstanding. There need be no rise in the prices of stocks and shares. But when real estate values go up, this is a pure asset price increase: the amount of land and the number of locations has not gone up. As a result, a rise in real estate values will tend to set off adjustments in portfolios, as well as encouraging an

increase in bank lending for dealing in asset markets. This can easily develop into an asset-pricing boom.¹⁴

In fact, we have *two* destabilizing processes here. The first is the interaction between the real and financial sides of the economy arising from the effects of growth in generating rents, which in turn impact financial markets, with feedback effects on the real side. The second is the way the effects on financial markets can get swept up in a potentially runaway upward spiral—that is, a rise in asset prices leads to bank and monetary expansion, which leads to a further rise in asset prices. This can also turn down: a fall in asset prices tends to lead to bank and monetary contraction, bringing a further fall in asset prices. Each of these interaction processes strongly tends to be destabilizing. Looking more closely, for example, at what happens to the D/E ratios, if equity rises, will not debt rise also, to keep the D/E ratio constant? And will the combination drive Q (the valuation ratio) up?

¹⁴ See Kindleberger (1978); Minsky (1986); Nell, 1998, Ch 12.

First, the growth of output and real capital leads to a rise in rents, increasing the earnings of rent-backed securities, thus lowering their P/E ratios. This will lead to a rise in the demand for such securities, causing portfolios to alter their compositions by selling off other securities in order to bid for rent-backed securities. The securities being sold off will tend to drift down in price, unless otherwise supported. Issuers of other securities will want to keep their prices up, to keep them competitive with real estate securities. (If a company's stock prices are down, raising money through new issues will dilute earnings to a greater extent). They will develop strategies to support their stocks, notably "buyback" purchases of their own stock.

This provides upward pressure in the markets for securities, which will tend to lower the D/E ratio—which would tend to encourage more borrowing, but the question here does not concern additional borrowing for building additional capacity. The issue is financing the purchase of securities. The rise in asset prices also has a

dual effect on the banking system. On the one hand, it increases the value of potential collateral; on the other, it increases the value of securities in the banks' own portfolios. Both of these effects tend to allow banks to increase their lending.

These additional loans amount to an increase in the money supply for asset buying and selling. A portfolio manager takes out a loan and buys. The seller then uses the proceeds to buy further assets but keeps a fraction of the funds for liquidity or precautionary purposes. In turn, the recipient of the funds passed on takes out a liquidity and precautionary fraction, and buys still further, and so on. This becomes a convergent series: if the liquidity/precautionary fraction is q , then the total spending will be the initial set of loans, multiplied by $1/(1-q)$.

This asset price money multiplier, analogous to the (in)famous alleged money multiplier that supposedly operated in the real economy, will then engender a sequence of transactions that will drive up asset prices by

more than the initial impact. So let's look at how an asset-price bubble develops.

At the outset, real growth leads to a rise in rents, which leads to an important sequence:

- a rise in rent-backed asset prices (lowering the D/E ratio), will be followed by buybacks to bring up the prices of other assets;
- collateral, along with bank capital, then increases in value;
- the (apparently justified) expectation of rising prices encourages plans to make further purchases;
- more loans are taken out (the D/E ratio is down, so more debt is permissible);
- spending from the new loans drives up asset prices further (restoring the D/E ratio);
- initial spending leads to more spending from the receipts, drives up asset prices still further

(via the asset price multiplier), and again lowers the D/E ratio;

- the value of collateral and bank capital rises again, permitting more loans and strengthening expectations of rising prices;
- leading to yet another round of increases in asset prices, including more buybacks.

Real-Financial Instability

This spiral could be fixed in diameter, presumably depending largely on the D/E ratio, or it could expand (exploding) or contract (converging) depending on a number of variables, not all of which can be explored here. But it will certainly contract if perceived risk rises rapidly as asset prices increase—banks will not be willing to lend as much as their capital permits. If risk rises less rapidly than bank capital, however, they will lend to the full extent permitted (or even beyond), leading to a strong expansion, but sooner or later risk will tend to increase,

and lending will be cut back. (Of course, there are other things that drive up rents and real estate values—they should be included too—but the impact of rising rents on security prices seems to be an unavoidable factor.)

At the outset of this process, we assume the real economy is experiencing balanced growth with steady wages, prices, and profits (but inequality is growing over time, a process we will examine in more detail shortly). Productivity is growing, so the rise in rents need not lower profits or wages, unless rents rise more than proportionally. We also provisionally assume given and unchanging monetary policies. On the financial side, the new real capital is balanced by new issues, with a given D/E ratio; hence, the rate of profit is steady. With rising rents, the prices of real estate assets are also rising, leading, as described, to a general rise in financial assets, driven by the asset price cycle. So, as a consequence of securitized rents, *real-side profits as a ratio to overall financial claims will fall*. The real surplus will not be enough to provide a satisfactory rate of return on financial

assets, creating pressure to drive wages down and force productivity up. This, combined with using part of profits in buybacks rather than in real investment, will tend to further weaken aggregate demand—already weakened by rising inequality—worsening the pressures.

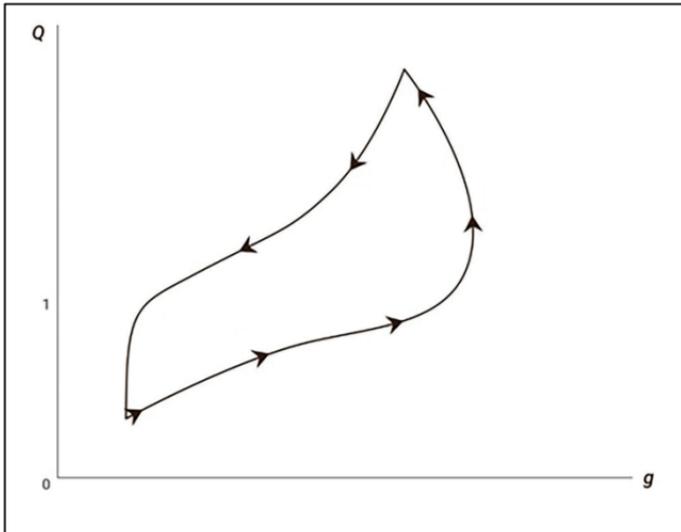
This sets the stage for a terrible crisis: on the one hand, the growth-rent-portfolio-adjustment process tends to drive up financial assets, increasing inequality and leverage and indebtedness while raising the valuation ratio, yet at the same time creating pressure to push down wages and reduce employment through labor-saving innovation. On the other hand, higher inequality, lower wages, and higher debt increase financial fragility: the ratio of over-indebted agents rises, leading to curtailed spending and, eventually, to deleveraging, so that a debt-deflation cycle may form—all of which tends to weaken aggregate demand. The feedback effects will include higher overall saving and therefore weaker markets, higher risk premiums, and bigger spreads, raising costs to households and

businesses, leading to weaker household, business, and investment spending and thus a more stagnant economy.¹⁵ As the real and financial sides of the economy pull further and further apart, both the economic links and the social fabric will begin to rupture—with consequences that cannot easily be predicted. Here is a diagram that shows how the variables move together.

FIGURE

¹⁵ This implies a valuation ratio above unity, $Q > 1$, which in conventional theory should lead to higher investment. But that theory was based on the idea that $Q > 1$ reflected higher expectation of profits in the future—raising equity prices—whereas in the circumstances described here the higher valuation ratio reflects the working of destabilizing processes. If $Q > 1$ did lead to higher investment, this would strengthen the boom and tend to keep Q from rising so much, or at least not as fast. It would be quite possible to imagine real investment tracking the changes in Q , lagging behind by a period. However, there are other important influences on real investment besides Q ., chiefly the expected growth of markets – which will be hampered by the growth of inequality.

Figure 1: Growth and the Valuation Ratio



These steps in the cycle can be charted on a phase diagram (Figure 1), plotting Q , non-derivative financial assets over aggregate real capital, on the vertical axis and the growth rate of output, g , on the horizontal. A rough account can be given as follows (there can be variations in several of these steps, but they all lead in the same direction):

- Starting below 1, as g rises, rents will rise, setting off a financial expansion, so that Q will rise also, from left to right, slowly at first, then faster, and finally much faster than g , which will tend to slow down as financial expansion cuts into the funding – and planning – for real investment. Ultimately we see Q rising vertically—at which time it will overshoot the vertical and turn back to the left, as the impact of the rapidly expanding financial system on the real economy turns negative, reducing growth. That is, the high level of asset prices—and the need for buybacks—will come to affect investment in the real economy negatively, by increasing the burden of debt and curtailing spending, so that the growth rate not only stops rising but begins to decrease.
- At this point portfolios will begin to unload, and as asset prices start to fall, selling will rapidly increase, bringing a sharp downturn. This

amounts to a fall in Q , at first slow but then becoming a vertical drop as deleveraging kicks in. Deleveraging will drive Q down below unity, dragging growth down at the same time; at the point where deleveraging is complete, Q will stop falling.

- But even in the slump real side investment will continue, at least for replacement, which will normally include improvements. As a result there will still be pressure capable of driving up rents. If rents are rising in a slump where everything else is stagnant, investment will take place in real estate as well as real estate securities, tending to bring about a construction upturn. So the real economy should begin to recover (although the timing cannot be predicted), and both g and Q will begin to rise again. Recovery is not automatic or assured; the economy could stagnate, unless a policy stimulus is provided.

This picture could be made into a precise model by introducing specific mathematical assumptions, e.g. writing g as a function of Q and dQ/dt , and Q of g and dg/dt , with appropriate assumptions about borrowers and lenders, then finding an equilibrium point and deriving a specific cyclical pattern around that point. Doing this might be useful at a later stage. But for now it seems better to keep the discussion open; every one of the steps outlined here is plausible, but most of them could take place in more than one way. And the cycle could be one that expands from period to period, in wider and wider swings; or it might contract, tending to spiral in to a single point - or it might tend to just stay about the same. Or it might tend to expand at one time and contract another. The important point is that rents and real estate play a role in both the upswing and the downturn, tending to *bring about financial movements that have no basis in real changes*. The whole picture is realistic, although abstract. No 'perfection' assumptions have been made, attributing impossible powers or knowledge to agents. Moreover, it

is also open, allowing for the possibility of various different but related patterns of movement. But it is based on two features of capitalism that many have tended to ignore – the financial sector and its interaction with the real side of the economy, on the one hand, and the role of rents and real estate in the cycle, on the other.

There do not seem to be any stabilizing features arising from the market to offset this plausible drift towards a spiraling vortex. Stabilization will have to come from Government! But the stabilization policies will almost certainly have to be directed to *both* the real and the financial sides of the economy. The financial system is fragile and the interaction strong; it appears that the fragility will tend to increase over time, until it breaks apart! And pulls the real side down, too. Unless there is an effective and well-executed intervention...

Progress and Inequality

Keynes felt that over time compound interest would make everyone wealthier; Marx didn't; nor did many

others. Henry George argued strongly that progress, while raising productivity and improving technology, would tend to lead to rising inequality and increasing poverty. He based this largely on his contention that rents would absorb an increasing fraction of the surplus, squeezing out wages and profits. The claim that non-rental incomes would be squeezed proved defective because it rested on unacceptable theories of the wage and interest. However, George's claim was also supported by his account of land speculation, where large-scale landlords reinvested their rents and acquired still more land, rents from which they also invested, acquiring still more, so that landholding became highly concentrated—more monopolized. There is a lesson here that needs to be explored in the context of today's expanded financial markets, including real estate.

Savings as they are placed in portfolios need to be examined more carefully. Investment, and other kinds of real-side spending, will determine the level of

aggregate demand, and therefore of incomes; out of income there will be relatively reliable percentages saved, which are different for different social classes and categories of business. These savings ratios give us the level of savings out of money income; these will be liquid, and the funds so saved will then be incorporated into portfolios. This process is often overlooked, but it has an important implication—namely, that some portfolios will systematically expand faster than others, resulting in growing inequality. This will react back on the real side. (Remember, the connection between the two sides of the economy is not tight and has become looser as “issuing” Central Banks have extended their activities, e.g. ‘quantitative easing’).

The Influence of Liquid Capital on Wages and Salaries, the Role of the Financial Sector, and Why This Phenomenon Was Not Seen Before

Throughout most of the history of capitalism, pay for labor or work done was separate from and, ceteris

paribus, varied inversely to the returns to capital. In other words, we had wages and salaries versus profits. Rich men (the rich have historically been men) owned firms and paid their top managers handsomely. Managers were still subordinates, and their pay depended on how well they pleased their employers. The distinction between owners and managers remained clear, until the time came when “ownership” became, for most investors, simply a matter of holding securities—shares and bonds. That is to say, “ownership” meant ownership of claims to income rather than command over labor and real resources. Once this became established, the nature of the hierarchy of pay and position changed, and the way to move up in that hierarchy changed too. When

owners ran their companies, pay and promotion depended on winning the good opinion of your superiors, through good work or through many other, often less admirable, channels. This is the way things still work for the bottom 80 percent—perhaps 90 percent—of the labor force. But a significant fraction of total income at the top, a fraction that seems to be increasing, can now take a different route.

First, they are in a position to influence the stock market, and in effect (to some extent) choose their “owners.” They may be able to arrange for investor groups to buy into the company on favorable terms, or to make favorable deals. Second, they own enough capital that they have the option of using it individually to improve their position at work—in simple ways, like taking the time and spending the money to improve their skills or get an advanced degree; or in more complex ways, like resigning and setting up their own competing company, taking some of the business with them. Or, they can join an investor group that buys into

the company, or make deals with executives of rival businesses. Having capital will bring them contacts and public positions, along with recognition, attention, and respect (whether deserved or not). These connections and appreciations will help them in many ways, unpredictably.

Besides these individual benefits conferred by capital ownership, there is the social, collective aspect: owners of capital share a common interest in its general profitability, in seeing that it is not taxed too heavily, nor regulated too strictly. In short, they can benefit from helping one another. Notoriously, corporations find common cause in managing markets and suppressing competition at times; holders of financial assets are, if anything, even more likely to join together to find ways to enhance their wealth. One way is to establish a common, very high, standard for pay at the topmost executive levels in the corporate world. Top pay rates and individual cases both are generally vetted for boards of directors by outside consultants. Both boards

of directors and consultants are made up of wealth holders, and tend to be sympathetic to increases in executive compensation. Earlier, of course, paying very high salaries to top executives could be seen as throwing away shareholders' money; but since the 1980s, productivity has risen while working-class and middle-class pay has stagnated. (In the 1960s top executive pay in the United States was about 30 times the average pay of production, nonsupervisory workers. Today, it is about 300 times that.). There is, therefore, a margin available: the top pay to executives will come out of the savings on the pay of the bottom 90 percent.

A Simple Model of Wealth Accumulation and Inequality (with Linear Coefficients)

Portfolios have further implications for saving and financial accumulation, assuming that the output-expenditure side of the economy continues to function smoothly at, or near, full employment. Real Investment is assumed to be strong, so that there is steady growth

from period to period, as shown in the growth model earlier. Investment will be financed in one of the ways just discussed, so that portfolios will have to adjust. Wages and salaries will be paid, and profits earned according to the norms and practices of the real economy. BUT wages and salaries and profits will be enhanced and affected by what happens in the financial side, along with the value of financial capital – and this is what we will look at now.

“Capitalists”—holders of claims to income from financial capital (stocks, bonds, options, securities, etc) -
- earn what we shall call “profit” income, P, by which we mean income from holdings of financial capital, including real estate and real estate securities. Note that this may consist of money payments like dividends, interest and rents, but it may also be capital gains from the increase in price of the assets. This important, for when the interest rate is lowered by open market operations, bond prices are driven up, providing capital gains. QE operations have raised not only bond prices,

but have generated equity booms as well. Further, however, recall that workers also save, and therefore have such capital income along with their principal income, wages, W . So the financial rate of return, financial earnings on financial capital, $r = P / fK$, will be assumed to be the same for both classes – though in reality it is likely to be higher for capitalists.

Capitalists save a large fraction of profit, P , and a large fraction of their high salaries, $s_c(Pc + Wc)$, where s_c is capitalists' propensity to save (assumed here, for simplicity, to be the same for both types of income). Workers save a much lower fraction of wages (s_w) and of their much smaller profit income, $s_w(Ww + Pw)$. Besides workers and capitalists, as here defined, there will be a class of nonowners—a precarious class, with zero or negative net worth, and no job security (if they are employed at all). Any increase in financial wealth will increase inequality with respect to this class. We know that the capitalist class has substantially more financial capital, fK , per capita than the working class; moreover,

for this argument, which is about inequality between classes, we will include the value of holdings of land, office buildings, and rental property in the capital of the capitalist class, and the corresponding rents will be included in capitalist earnings from wealth. Worker capital will include pensions and owner-occupied housing, and their incomes will be adjusted for imputed rents. There will be a large difference between capitalist wealth, so defined, and working-class wealth, a difference expressed by the parameter, a . Therefore, capitalist earnings from (its managerial) work will be proportionally higher per capita than the earnings from the ordinary work of the working class.³⁶ Further, if the capital of the capitalist class contains a larger fraction of rental securities and real estate than does the capital of the working class, then the capital of the capitalist will expand faster on its own, due to the rise in rents brought about by growth. This will tend to increase inequality by itself.

Let us set this last point aside for the moment. If the coefficients for the impact of wealth on earnings from work are the same, then *wages per unit of financial capital* will be the same for the two classes. This ratio will be w . Writing the equations with the sub- scripts c for capitalists, w for wage earners, L for labor (number of workers), and W for wage/salary income—remembering that a is the ratio between capitalist and working class per-capita wealth—we get:

$${}_fK_c/L_c = a{}_fK_w/L_w, \text{ where } a > 1, \text{ and}$$

$$W_c/L_c = aW_w/L_w. \text{ Combining these, } a \text{ cancels,}$$

$$\text{so } W_c/{}_fK_c = W_w/{}_fK_w = w.$$

Now consider the implications for the growth of inequality. The respective financial incomes of the two classes are: $Y_c = P_c + W_c$ and $Y_w = P_w + W_w$. Both P and W depend on ${}_fK$ here, that is, on

³⁶ We could and should add that credit availability depends on wealth, so credit will be available to capitalists far more readily and far more cheaply than to workers. This will intensify all our conclusions, but we will not include this in order to keep the argument simple.

the respective holdings of wealth by the two classes. We are not concerned at the moment with the real economy; we assume that it is working well and that aggregate demand is such that the level of employment is satisfactory, and that revenues are such that wages, profits, and rents can be paid. Our concern is with the effects of growth on the holding of wealth, and with the consequent influence of these changed holdings on distribution. Growth of the holdings of the respective classes will depend on their savings. (We assume savings—demand for securities—to be immediately turned into new holding of securities: there is no problem of adequate supply of securities. This might reflect issuance of securities for investment equal to savings, or it might reflect the issuing of securities by financial firms—what used to be called “pyramiding.”)

$$S_c = s_c(P_c + W_c), \text{ and } S_w = s_w(P_w + W_w)$$

Now divide both sides of the first equation by the financial capital of the capitalist class, and both sides of the second by the financial capital of the working class:

$$g_c = S_c/fK_c = s_c(P_c + W_c)/fK_c = s_c(r + w), \text{ and}$$

$$g_w = S_w/fK_w = s_w(P_w + W_w)/fK_w = s_w(r + w).$$

Hence, dividing the top equation by the lower:

$$g_c/g_w = s_c/s_w.$$

Based on the premises of this model, both profits and wages stand in fixed proportion to capital— r and w , respectively; therefore, the growth of capital holdings will raise profits and wages in proportion. Thus, the growth of capitalist income, Y_c , will be given by g_c , and the growth of working-class income, Y_w , will be given by g_w . Accordingly, Y_c will grow faster than Y_w . Inequality between capitalists and workers will, therefore, increase at the rate s_c/s_w .

Notice that this tendency will not be affected by the normal practice of fiscal and monetary policy. To stimulate the economy monetary policy will reduce the interest rate, but this creates capital gains! To dampen a boom it will raise interest rates, increasing financial incomes: in each case the financial impact is offset. The same applies to the effects of fiscal deficits on interest rates and bond prices; the long-term effect appears to be one of support for security prices.

But we should remember that there is a large fraction of the population that has *no net wealth at all*, so any increase in financial wealth will increase inequality with regard to them. Both capitalists and workers will increase their wealth at their respective growth rates compared to this underclass, which has no wealth and does not save.

Finally, as mentioned above, if the capitalist class has a higher fraction of real estate securities among its holdings, its wealth will tend to rise relative to the wealth of the working class for that reason alone.

Toward a More Complete Model

Increases in inequality will tend to reduce the propensity to consume, weakening the multiplier and making it harder to sustain aggregate demand. They will also tend to shift investment and innovation toward luxuries and items for the extremely rich, such as the emerging field of space travel. The weakening of demand could make it more difficult to develop new products and new technologies that require enormous scale in production and need a mass market. This could bring on or intensify long-term stagnation,

leading to a collapse of investment, whereupon the effort to keep up the supply of securities, through pyramiding and developing derivatives, will affect the valuation ratio and could ultimately lead to another breakdown of the financial system.

On the other hand, a political solution could emerge—taxing unearned income, perhaps even taxing

wealth (or, as Henry George advocated, taxing rental income), but most importantly, taxing financial earnings, at the same time providing a long-term stimulus to employment, including job retraining in the context of a system of public employment (preferably one that operates counter-cyclically, such as an Employer of Last Resort). These possibilities deserve careful attention, but they go beyond the objective here, which was to show how the saving-accumulation process, together with the effects of wealth on earned income, would tend, as many have suggested, to generate greater, persistent, and regularly increasing income inequality.

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APPENDIX: DEFICT POLICY, in the Long-run

Monetary authorities will want to consider their position over the long run. But it is not easy to find a criterion for how large the level of debt should be, since the impact of

higher levels of debt can be offset by lower interest rates. In the short run deficits provide a stimulus, but their size need not matter to financial markets, as we have seen. However, in the long run, the size of the government debt in relation to productive capital (public and private) can matter, though exactly how it matters depends on the desired financial regime, on whether the interest on the public debt is saved or invested, and on the minimum acceptable level of the interest rate.

Consider a simple model: suppose the desired financial regime is one in which $g \geq I$, a support for universities and hospitals, commitment to expansion. Suppose further that all earnings from private wealth are saved and invested, while all earnings from holdings of public debt are consumed. (Much of this may be socially desirable consumption, including formation of human capital, maintenance of the social fabric, as when interest on public bonds goes to support hospitals, universities and foundations. But it does not directly increase productive capital.) Assume that all wages are consumed, and that all taxes fall on wages, and that all government spending is collective consumption (again, this may be useful and indirectly productive.) Under these conditions the surplus of output over consumption of all kinds, $Y - C$, will be profits, P . By definition, $P = rK$. Private wealth, W_p will earn interest and dividends, and by assumption we will assume that equity and debt earn at the same rate. These earnings are all saved and invested, so $iW_p = I = gK$. We assume now that $g = i$; so $W_p = K$. Government debt will be D_g . Then total profits,

$$P = i(W_p + D_g), \text{ so, re-arranging,}$$

$D_g = P/i - W_p = P/i - K = (r/i - 1)K$. That is, given that the rate of interest is to equal the rate of growth, the size of the government debt cannot be greater than the difference between the present value of the stream of profits, capitalized at the rate of interest, and the replacement cost of the capital stock. By lowering the rate of interest, the acceptable size of public debt can be increased; but the *minimum* rate of interest could be that which provides earnings to the financial system just sufficient to cover the costs of providing financial services (Nell, 2000). (If there is consumption out of earnings from private wealth, then $gK = s_p i W_p$, where s_p is the propensity to save out of private wealth income. If $g = i$, then $W_p = K/s_p$. Private financial wealth will be greater than the

replacement cost of capital. If there is saving for investment out of earnings from public debt, then D_g can be correspondingly higher.)