

# Improving Economic Policy

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## **Key Points**

- The consensus model (CM) holds that there is only one equilibrium that needs to be maintained for economic stability. This follows, as a matter of logical necessity, from the model's fundamental assumptions.
- The evidence is, however, clear that, independently of each other, asset prices, money supply and demand all need to be kept in balance. The widespread scepticism among economists and central bankers over the single equilibrium assumption is thus abundantly justified. Two important conclusions follow:
- CM must therefore be discarded if economic policy is to achieve growth with low and stable levels of unemployment and inflation.
- The existence of three possible disequilibria requires at least three independent policy instruments to allow the economy to be managed successfully.
- In addition to monetary and fiscal policy, another instrument is thus needed, which tax policy can and should provide. If used appropriately, these three tools can preserve stability.
- Importantly, the correct use of tax policy should not only prevent the policy errors which have led to rapid inflation and financial crises but restore the trend growth of developed economies to the rates achieved before 2000.

## **Introduction**

### **Bad policy or bad luck**

The bad record of major developed economies in the twenty-first century is shown when compared with either their past or that of the world average. There was a major financial crisis in 2008; the risk of another is currently high, growth

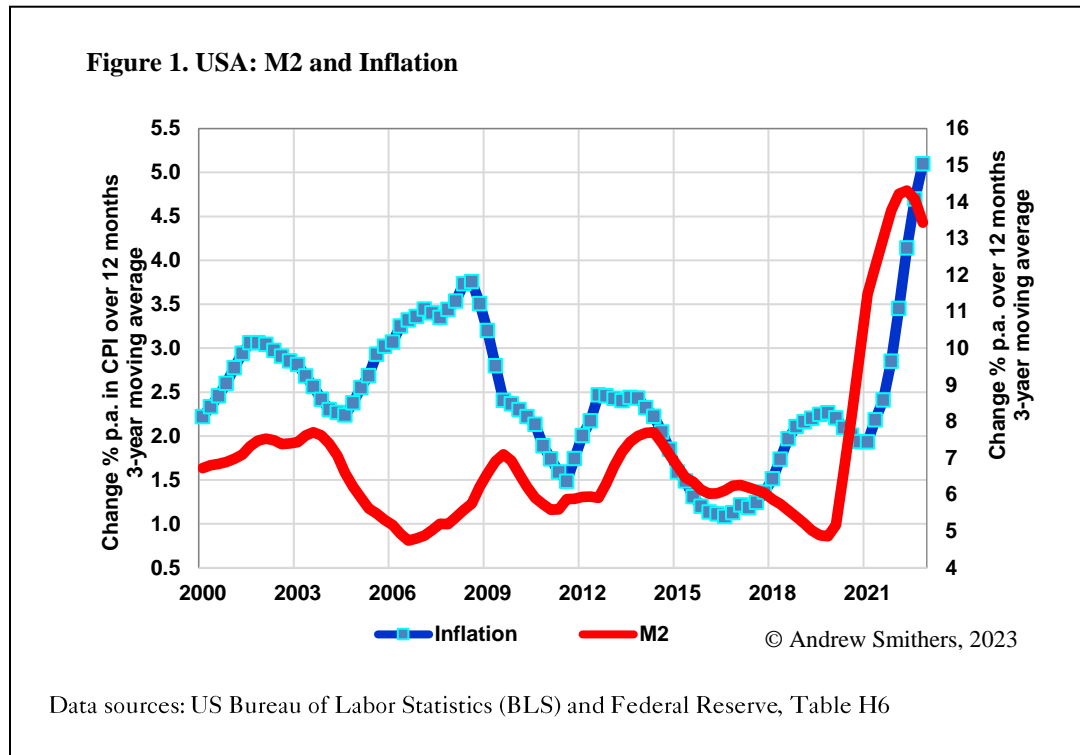
has been slow and inflation has risen dramatically. These troubles can be attributed to either bad policy or bad luck.

Bad luck may well have restricted the relative growth of G5 countries. While new technology has made large advances, its impact on labour productivity has been disappointing. This is likely to have had a smaller adverse impact on less developed economies which are still catching up, as their growth is more dependent than that of richer countries on the exploitation of older technology. It is also likely that bad luck has contributed to inflation, as Putin's invasion of Ukraine has clearly driven a sharp rise in energy prices and the COVID shock may have limited output more than demand.

We have, however, also experienced elevated levels of money supply and asset prices, which have not resulted from these shocks but from the economic policies pursued. There is strong evidence that one cause of inflation is excessive growth in the supply of money and that financial crises arise from inflated asset prices so that, even allowing for ill luck, bad policy decisions have made a major contribution to our current troubles. This does not necessarily indicate operational incompetence by governments and central bankers, however. Policy is necessarily based on theory, so mistakes can arise either from poor judgement in applying sound theory or from the failures that result from the use of an invalid model.

It is often claimed that doctors in the eighteenth century killed more patients than disease. The problem was not the skill of doctors in applying the theories they were taught, but that these theories were often nonsense. The economic policy failures of the twenty-first century may in a similar fashion result from the errors of consensus theory rather than its unskilled application.

## Money and Inflation



Giving attention to data on monetary aggregates has become unfashionable in recent years as their fluctuations have seemed to have no practical importance. But after moving within a narrow range in the first two decades of this century, the growth of M2 suddenly accelerated after 2020 and was followed, about three years later, by a dramatic rise in inflation. That the previous neglect of monetary data appears to have been a serious error is a common conclusion and is held for example in a recent paper which reviews the way and extent to which money supply and inflation are linked.<sup>1</sup>

While accepting that this remains contentious, the authors draw attention to the empirical evidence that ‘...the strong link between inflation and money emerges only in high or hyper-inflation countries’.

Even though monetary theory remains an open debate, agreement on the connection between rapid money growth and inflation has great pragmatic

<sup>1</sup> *Successful central banks can afford to pay scant attention to money* (2021), by Francesco Papadia and Leonardo Cadamuro. Published on the Bruegel website: [www.bruegel.org/working-paper/does-money-growth-tell-us-anything-about-inflation](http://www.bruegel.org/working-paper/does-money-growth-tell-us-anything-about-inflation).

importance for economic policy. The apparent irrelevance of short-term fluctuations in money supply as lead indicators of output or inflation does not undermine the practical conclusion that, even if small changes can be treated as statistical noise rather than signal, economic stability requires that money supply must be kept under control.

## Monetary Policy and Asset Prices

Excess demand and rapid growth in money supply are not the only threats to stability; a significant mispricing of assets is another. This may occur in several types of assets, including shares, house prices and commercial property. The value of shares can be measured by  $q$  ratios (stock market value/net worth) and appear to be the only assets whose equilibrium level can currently be assessed.<sup>2</sup>

Elevated levels of  $q$ , like elevated levels of money, are a sign of disequilibrium and the consequent falls in share prices have regularly set off financial crises followed by high levels of unemployment.  $q$  also shares with monetary data the quality that its shorter-term fluctuations appear to be statistical noise, having little if any significance. They may both reflect in different ways the frequent short-term swings in confidence that affect the household and business sectors.

Over short periods of time, declines in short-term interest rates boost equity prices, but the effect falls off quickly and is virtually non-existent over five years.<sup>3</sup>

Such changes have a much smaller impact on the value of corporate assets, so declines in short-term interest rates have the temporary effect of pushing up share prices more than net worth and  $q$  therefore rises. But  $q$  is stationary,<sup>4</sup> so the stock market will tend to fall back unless short-term interest rates keep declining, and the strength of the fall will be enhanced by the degree to which  $q$  is above its mean-reverting average. A sharply falling stock market thus becomes more likely the higher the level of  $q$  and the likelihood of sharp and large declines is even more probable if elevated levels of  $q$  are combined with

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<sup>2</sup> *The Economics of The Stock Market* by Andrew Smithers (Oxford University Press, 2022).

<sup>3</sup> *Interest Rates, Profits and Share Prices* by James Mitchell (John Wiley & Sons Ltd, 2009), Appendix 3, 'Wall Street revalued: imperfect markets and inept central bankers' by Andrew Smithers.

<sup>4</sup> Smithers, *The Economics of the Stock Market* op. cit.

rising short-term interest rates. It is therefore dangerous to boost demand by reducing short-term interest rates unless  $q$  is near or below average.

$q$  is affected by long-dated bond yields, as well as short-term interest rates. Quantitative easing (QE) pushes up the prices of long-term debt because it involves their purchase by central banks. The yield curve, which measures the current difference between short- and long-term interest rates, is also affected by many other factors, so its slope does not necessarily capture the degree to which it has been flattened by QE. However, the monetary base (M0) tends to expand when central banks buy bonds, so the contribution of QE in causing the stock market to become dangerously overpriced can be seen through the relationship between M0 and  $q$ .

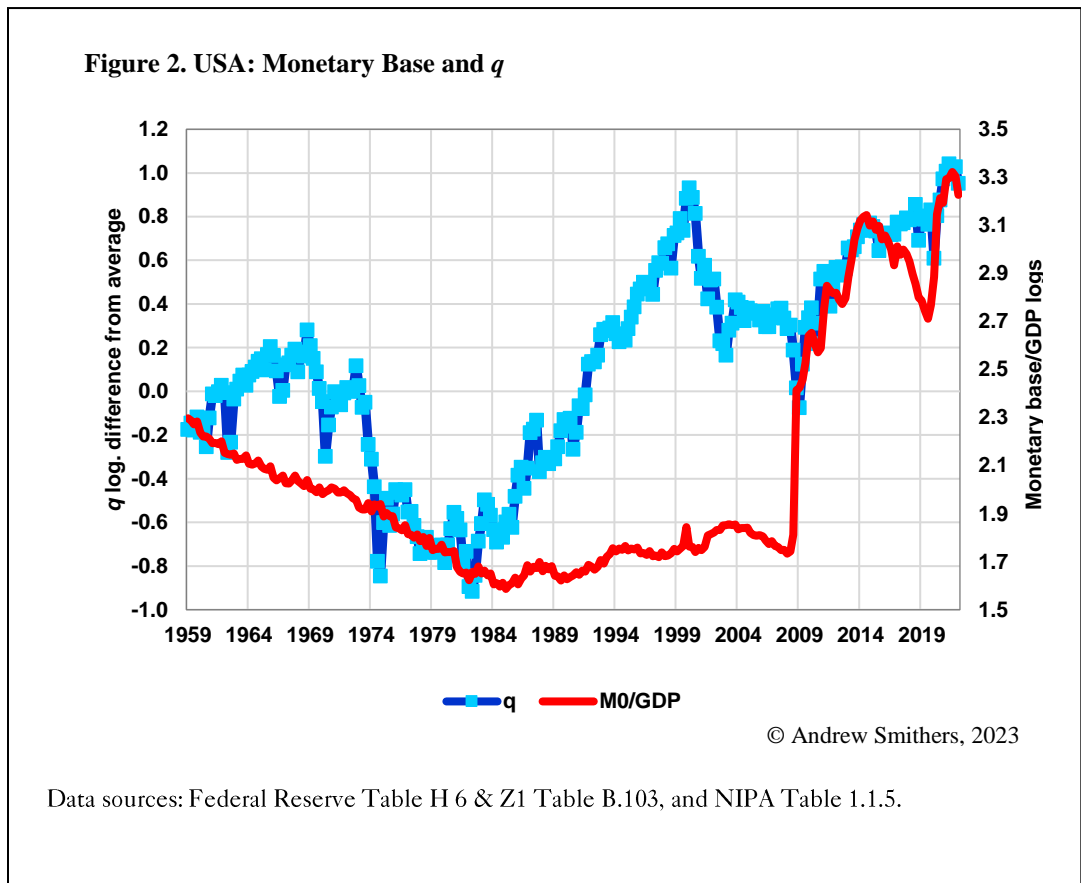


Figure 2 shows that in the USA the ratio of the monetary base to GDP fell from 1950 to 1984, at a time when  $q$  declined, rose slowly to 2000, dipped a little

to 2009 and then exploded. As  $q$  responds to short-term interest rates as well as changes in the M0/GDP ratio, and an overvalued  $q$  tends to fall back without offsetting support, the two ratios do not move exactly together, but the influence of QE on the overvaluation of  $q$  fits well with the changes shown in Figure 2. The decline in  $q$  from 1950 to 1984 was accompanied both by rising interest rates and a fall in the ratio of the monetary base to GDP. The rise in  $q$  from 1984 to 2000 was a period in which interest rates fell sharply and M0/GDP rose. The post-2000 fall in the stock market was halted in 2009 at a time when M0/GDP rose at a record-breaking pace and both ratios have since risen to their highest levels.

As a tool of economic policy QE could be useful to boost demand if its use were not extremely dangerous when  $q$  is elevated. As QE has so far been only used in such conditions it is unlikely that it should ever be used, unless it can be shown that no other tool to boost demand is available. The danger of using QE applies also to funding policy, which depends on whether governments choose to fund their debt with long-dated bonds or short-term by issuing Treasury bills. Funding policy can thus have the same effect as QE and should be avoided for the same reasons.

Households judge their wealth largely from the level of share prices so, when  $q$  is high, they overestimate their long-term prosperity. This affects their apparent need to save, which therefore tends to fall as the value of  $q$  increases. Share prices fall more strongly than they rise and this tendency is enhanced by the degree to which  $q$  is above average. This renders the economy vulnerable to falls in the stock market as large and rapid declines in share prices have a marked effect on both households and companies. Experience shows that the economy often weakens in response to stock market declines. Savings rise both because households seem poorer and perhaps because of increased worries about future employment, which are certainly justified by experience. Business confidence, ‘the animal spirits of entrepreneurs’, is also depressed by falling share prices. Companies become cautious about borrowing and investing. Lenders become nervous about providing finance and uncertainty over its availability adds to corporate caution over spending.

## QE, Money, and Asset Prices

In the EU, UK and US money supply has recently risen sharply at a time when demand seems to have been at rather than above the NAIRU (the non-accelerating inflation rate of unemployment). In each case this follows a dramatic rise in their monetary bases but, despite a similar large expansion in M0, Japan has not yet seen a rapid rise in its broad money supply, though inflation has picked up. We are therefore looking at an interesting and potentially informative experiment in economics, which should tell us whether a large rise in M0/GDP is always followed by rapid monetary growth. Whether or not Japanese data confirm that expanding M0 risks a knock-on impact on broad money, its impact elsewhere is a sufficient warning that QE is undesirable from the viewpoint of controlling money supply. A possible explanation for the low monetary growth in Japan, despite its elevated level of M0/GDP, is that so far at least Japanese asset prices, with the probable exception of bonds, do not seem to have risen to dangerously high levels.<sup>5</sup>

Expanding the monetary base is dangerous if it elevates  $q$ , as Figure 2 illustrates, and dangerous because of the risks it poses for future growth in broad money. It is unnecessary unless governments have failed to provide sufficient stimulus through tax or fiscal policies. Unnecessary and dangerous policies should always be avoided. So QE should never be used to support demand.

## A Third Policy Tool

The shorter-term aim of policy is economic stability, which is well defined as growth with low levels of inflation and unemployment. Excess demand and extended ratios of M2/GDP lead to rapid inflation, though they do so over different time horizons, and elevated levels of  $q$  lead to financial crises. Stability will thus be threatened if any of three conditions are allowed to arise:

- i. an *ex ante* imbalance between savings and investment,
- ii. a dramatic fall in the stock market, and
- iii. a sharp rise in inflation.

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<sup>5</sup> Asset prices are not, however, the only possible transmission mechanism between the M0 and broad money measures. Inflationary expectations may also be important.

Not only must demand be maintained at the NAIRU, but elevated levels of money and  $q$  must be avoided as they are harbingers of inflation and financial crises.

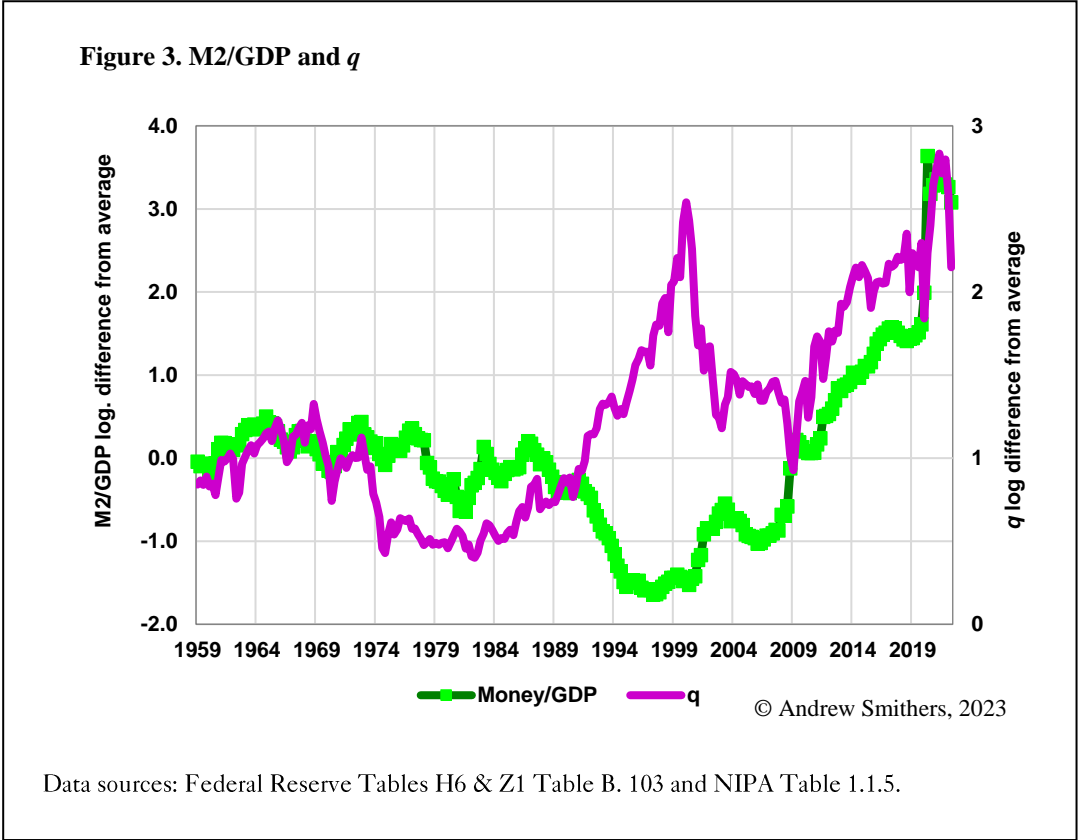


Figure 3 shows that excessive levels of money and  $q$  are unrelated, so we have, together with demand, three possible disequilibria which are independent of one another. Not only therefore do we need at least three policy instruments to achieve economic stability, but they each must be capable of being used to maintain one balance without creating another imbalance. Demand, money and asset prices must all be held at their equilibrium levels by individual policy tools which can be used to control each of these variables independently. In addition to fiscal policy and short-term interest rates a third instrument is needed. This is not provided by funding policy, which includes QE, as it cannot be used to control any one of the required equilibria without affecting at least one other and probably both.



If a boost to demand is needed and cuts in short-term interest rates are impossible or ineffective, the policy response must depend on whether the weakness in demand is a structural rather than a temporary cyclical problem. Boosting demand with low interest rates and QE drives up private sector debt as well as  $q$  and makes financial crises likely; using fiscal stimulus to solve a long-term problem raises the spectre of an ever-rising ratio of debt to national income. Neither fiscal nor monetary policy are thus suitable instruments to deal with a structural tendency for *ex ante* net savings to be positive; positive *ex ante* net savings have predominated this century. We need an additional policy tool to supplement fiscal and monetary policy.

### **Structural Liquidity Traps (aka Secular Stagnation)**

The difference between a temporary, cyclical, *ex ante* savings surplus and a more embedded one is obvious. We know that we have been suffering this century from a structural rather than a cyclical liquidity trap because central banks have persistently seen the need to stimulate demand when  $q$  has been above its long-term average value, as Figure 2 shows.

There is no need for monetary stimulus if fiscal policy is a sensible alternative, which it is not if the liquidity trap is structural. It is then reasonable to be worried by the prospect of an ever-rising ratio of national debt/GDP. The UK's recent experience under Liz Truss's short-lived government shows that fiscal policy can destabilise the economy by creating short-term shocks in bond and currency markets.

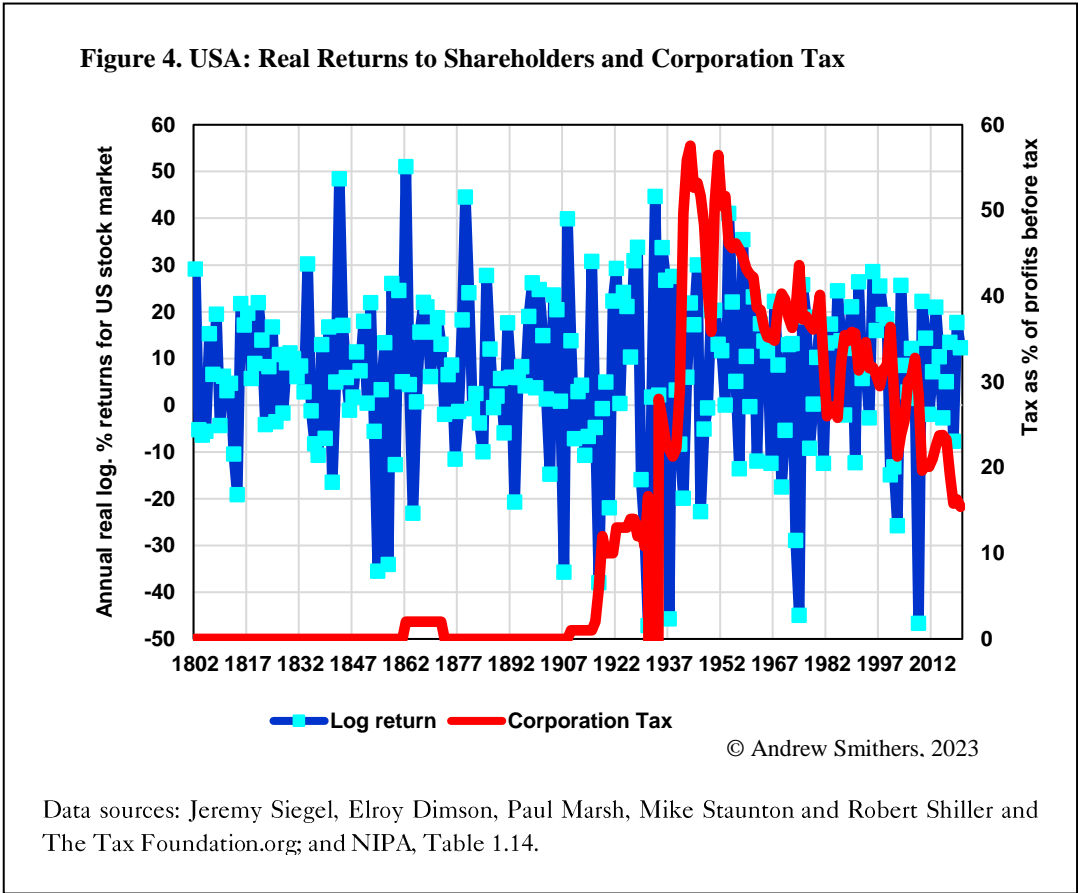
There are occasions therefore when demand threatens to be insufficient to maintain unemployment at the NAIRU, but fiscal stimulus is not available and monetary policy is inadvisable. These conditions are those of a structural liquidity trap, which has also been termed secular stagnation.<sup>6</sup> Unless we have an additional policy tool to supplement monetary and fiscal policy, we are faced with either rising unemployment, rising inflation or a financial crisis, and there is a high risk today that we will soon suffer from all of them.

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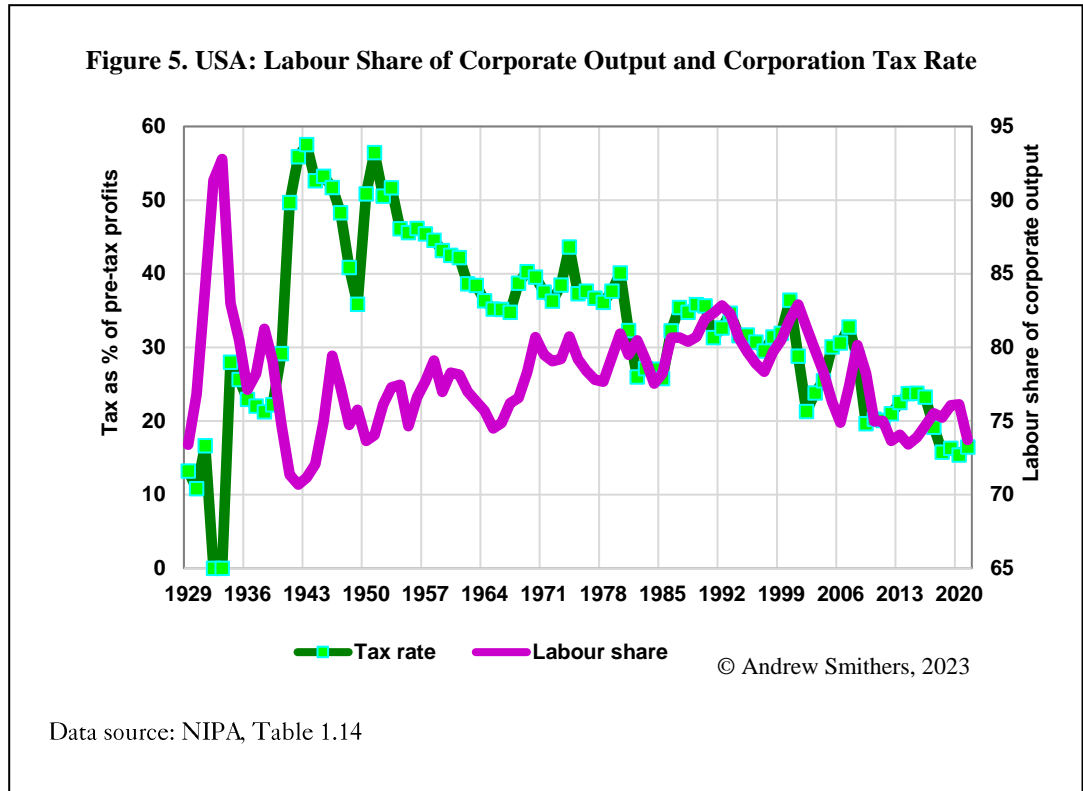
<sup>6</sup> *The age of secular stagnation: what it is and what to do about it*, by Lawrence Summers. (February 2017) Foreign Affairs.

### Tax Policy as the Third Tool

Figure 4 compares the logarithms of the real returns on US shares annually since 1801 with the rate of Federal corporation tax. They are completely unrelated. Shareholders have not therefore suffered from rises in this tax or benefited from any declines. As the chart shows, real shareholder returns have rotated around a stable average of about 6.7% and this has been the same whether there was no corporation tax, as was the case for most of the nineteenth century, or since 1917 when it has always been significant, subject only to there being profits that could be taxed. The lack of pain for shareholders is also shown by fluctuations in equity returns over the past century, which have been totally unrelated to the current rate of corporation tax. No tax can be levied without hurting someone or something.



Corporation tax might simply be passed on in prices which would keep the return on equity stable by increasing profits through reducing the labour share of output; Table 1, the data for which are also illustrated in Figure 5, shows however that this has not occurred.



**Table 1. Correlations between corporation tax and the labour share of output**

	1929 to 2021	1929 to 1945	1945 to 2021
Coefficient of correlation	-0.368	-0.79	0.066
R <sup>2</sup>	0.135	0.624	0.004

Data source: NIPA, Table 1.14

Over the whole period for which we have data (1929 to 2021), there has been no significant correlation between the level of corporation tax and the labour share of output. There was a low correlation over the whole period and a

significant one from 1929 to 1945, but corporation tax cannot have been passed on to the employees, as both these correlations were negative. The evidence is thus clear that corporation tax falls on neither customers, nor shareholders, nor employees. The only remaining income source from corporate output is interest on debt and this is clearly unaffected by corporation tax. As it nonetheless swells government revenue it must cause some switch of resources from the private to the public sector. Corporation tax cannot fall directly on consumption, as companies do not consume, nor indirectly via incomes, as it has no effect on either profits or employees' remuneration. It must therefore fall on private sector investment.

Cutting the revenue from corporation tax will thus increase the level of investment above what it otherwise would be. As there are many other things which affect how much companies invest, its level also changes independently of the variations in corporation tax revenue. Investment can therefore fall in the short-term even when corporation tax is reduced. But we can see the effect of corporation tax if we look at longer-term data and, by doing this, as illustrated in Figure 4, we know that investment will be greater than it would have been if the tax revenue from corporation tax is reduced.

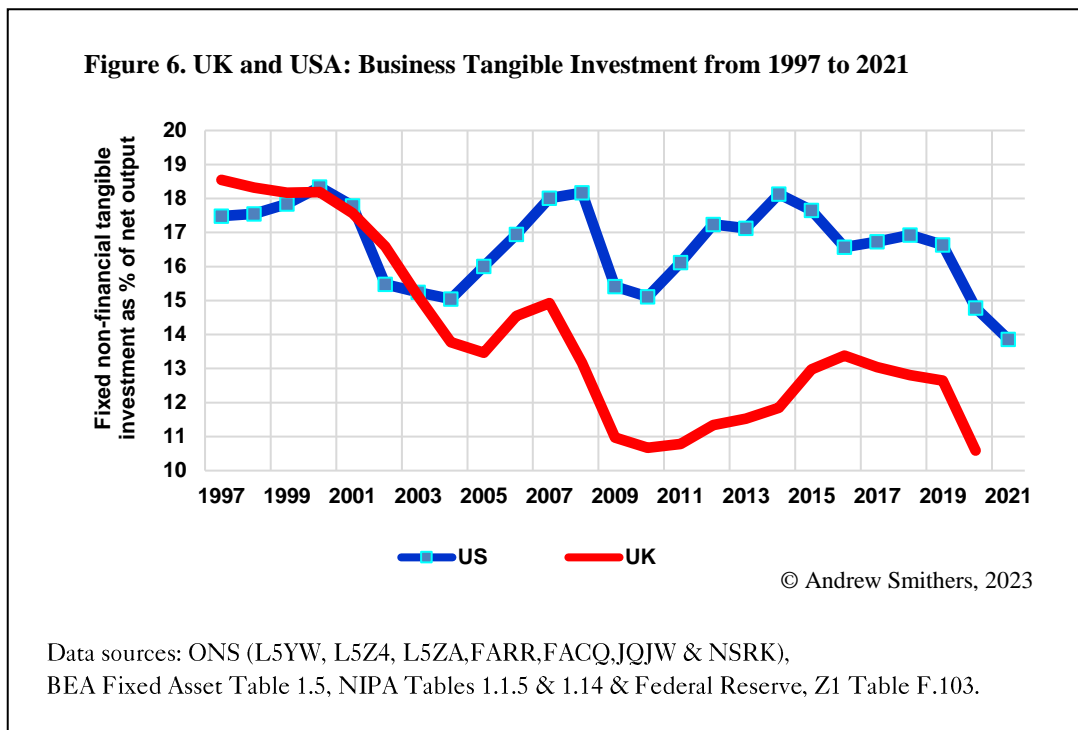
Tax policy, as distinct from fiscal policy, requires that the government's budget deficit does not change. The fall in revenue from corporation tax must therefore be matched by a rise in revenue from a tax that falls not on investment but on consumption. Whichever way taxes on consumption are raised, they all reduce the real spendable income of the household sector. When incomes fall households seek to reduce their consumption by as little as possible and do not respond by increasing their savings. The level of household savings does not normally rise and may well fall in response to increased taxes on consumption. A combination of reduced revenue from corporation tax and higher taxes on consumption would stimulate business investment without increasing household savings. Although corporate savings tend to rise with capital spending<sup>7</sup> the net effect is to raise spending more than savings, stimulating total demand as well as shifting it from consumption to investment.

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<sup>7</sup>The evidence for this is set out in Chapter 4 of *The Economics of The Stock Market* and illustrated in Figures 6 and 7.

## Optimizing the Incentive to Invest

‘Whatever else may be wrong with economics, its starting point is correct: people do indeed respond to incentives.’<sup>8</sup> A corollary of this truism is that the more you tax something the less you have and the more you subsidise the more you get. Although faster growth would be welcome, doing this by shifting tax to boost investment at the expense of consumption is likely to be unpopular if, as is often assumed, most of us are myopic and dislike having less money to spend now, even if we are assured of having more in the future. Changes should therefore follow a key principle of sound tax policy which is to achieve as much beneficial change as is possible from the smallest degree to which tax rates are altered.



The revenue from corporation tax can be lowered either by reducing the headline rate or by giving subsidies in proportion to the amount invested. The choice between subsidies which incentivise investment and those which reduce the disincentive by cutting the rate of corporation tax favours the use of

<sup>8</sup> *The market can deliver the green transition—just not fast enough*, by Martin Wolf, Financial Times, 22 November 2022.

incentives, particularly if they result in a rise in earnings per share (EPS) in response to higher investment. This is because the weakness in tangible business investment this century, which is illustrated in Figure 6 for the UK and for the USA, comes in part from the change in the way business managers are paid. There was a dramatic change in the 1990s, with a huge increase taking place in the pay of senior executives, with a large part being due to the bonuses. This shifted the balance between the two major concerns of senior executives, which are to keep their jobs and to be highly paid. Jobs are at risk if companies invest either too much or too little. Investment tends to reduce EPS as the benefits it brings by reducing production costs are often delayed until sales have risen sufficiently to meet the increased capacity, which usually accompanies investment, while the rise in costs, including more depreciation, is more immediate. But investment is also essential for improving productivity and, unless it advances, companies risk having higher production costs than their competitors. They then risk losing their market share as their competitors' lower costs allow them to spend more on marketing or reduce their prices. Once companies start to lose market share their survival is at risk.

The PE multiple, which is the ratio of share price to EPS, is the single most important criterion used for share evaluation. Share prices are thus heavily dependent on EPS, to which bonuses are usually linked, either directly or indirectly via share prices. The arrival of the bonus culture increased the sensitivity of managers' remuneration to changes in EPS and thus shifted the relative importance of pay and job security. Short-term rewards became more valuable and reduced the pain of being dismissed. It is therefore likely that the weakness of business investment this century is partly due to the dramatic arrival of the bonus culture in the previous decade.<sup>9</sup>

The return on capital is equally unaffected either by cuts in the rate of corporation tax or subsidies for investment, but their impact on the EPS of individual companies will differ. Subsidies will raise EPS more for those who increase their level of investment than those who do not, while this incentive is absent when the rate of corporation tax is changed. Subsidies are thus likely to raise investment by more than the same loss of tax revenue from a cut in the rate, particularly if the accounting treatment is favourable. Bonuses tend to move with EPS and the extent to which they will rise thus depends on the way they

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<sup>9</sup> For a more detailed explanation see *Productivity and the Bonus Culture* by Andrew Smithers (Oxford University Press, 2019).

are measured.<sup>10</sup> The accounting system used is therefore important and this is likely to be different if the incentive takes the form of accelerated depreciation or is a cash credit proportionate to the amount of the investment. A credit leaves future depreciation allowances unchanged, whereas they decline when they are accelerated. The improvement in this year's EPS will be smaller if allowance is made in the accounts for the higher future tax payments that will result from lower future depreciation. Subsidies for investment should not therefore result in any reduction in future tax and should not take the form of accelerated depreciation but be cash amounts paid as a proportion of investment.

### **Depreciation, Cash Flow and the Return on Equity**

Changes in corporation tax have no effect on current levels of output, profits or income from employment, but they change the ratio of depreciation to gross output, measured before depreciation, so pre-tax profits change if gross output does not alter. Changes in depreciation match changes in the ratio of post-tax to pre-tax profits, which follow changes in corporation tax. These offsetting changes occur because

- i. the ratio of value of the fixed produced capital stock/net output is stationary,
- ii. profit margins are stationary,
- iii. depreciation varies with changes in the growth of real wages and
- iv. fluctuations in real wages change with the level of investment.

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<sup>10</sup> Accounting treatment does not necessarily accord with 'real changes', but reality responds to accounting treatment if linked to pay, which is undoubtedly real.

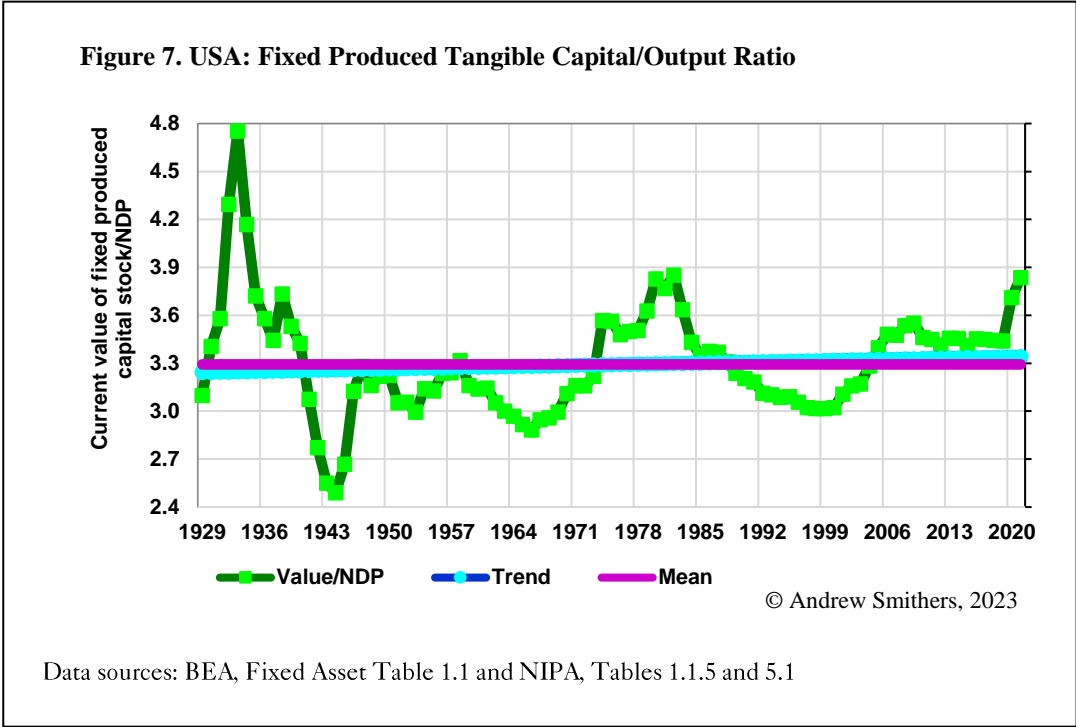
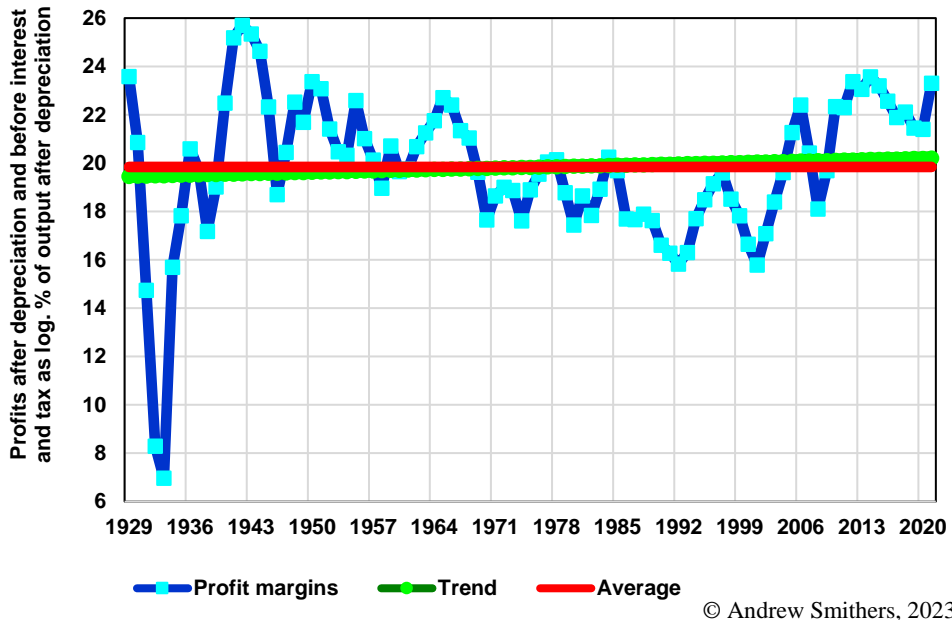


Figure 7 illustrates point (i) by showing the mean reversion of the ratio of net output to the value of the capital stock. Future growth in output thus moves with changes in the rate at which the value of net capital stock changes through additions from new investment and reductions from depreciation (capital consumption). As this ratio is stationary, the additions to capital from new investment vary with the ratio of investment to output. But capital consumption also moves with output, which moderates the relationship. Growth rises with investment but not proportionately.



**Figure 8. USA: Corporate Profit Margins**



Data source: NIPA, Table 1.14

It is generally agreed by economists that profit margins are stationary, as set out in the Cobb-Douglas production function.<sup>11</sup> This is shown in Figure 8 which illustrates point (ii). Wages therefore change with labour productivity and, as depreciation changes in line with wages (point (iii)),<sup>12</sup> fluctuations in real wages change with the level of investment (point (iv)). Depreciation thus falls if the ratio of investment to output declines and, as investment is deterred by corporation tax, rises in corporation tax are matched by lower capital consumption. The net effect is for pre-tax profits to rise relative to gross output, measured before depreciation, but for post-tax profits to be unchanged. Corporate cash flow declines if more tax is paid, but profits are unchanged because the cost of the tax is matched by the lower cost of capital consumption.

<sup>11</sup> "... the Cobb-Douglas case... is generally seen as a good description of the production function in the medium term", *Public debt and low interest rates*, by Olivier Blanchard (2019) *American Economic Review* 109, 4.

<sup>12</sup> *Neoclassical growth with fixed factor proportions*, by R.M. Solow, J. Tobin, C.C. Weizsacker and M. Yaari (1966) *The Review of Economic Studies* 33, 2.

The historic cost of depreciation is not affected as this depends on past changes in wages. The efficiency of the existing capital stock is also unaffected, so neither gross output, nor past capital consumption, nor debt vary with fluctuations in corporation tax. Neither the value of equity nor profits after tax change; the return on equity is thus unaffected by changes in corporation tax, as shown in Figure 4.

## **Confusion over ACT**

The effective level of corporation tax can be varied in several different ways:

- i. by changing the headline rate,
- ii. by reducing the amount actually paid by giving credits for investment, either tangible or intangible,
- iii. by allowing corporation tax payments to be reclaimed by shareholders, as occurred under the UK's advanced corporation tax (ACT),
- iv. by changing depreciation allowances or
- v. by not changing them to allow for changes in inflation.

The effective level of corporation tax therefore is often very different from the headline rate and the revenue which is attributed to it in tax and GDP data.

ACT was introduced in 1973 and abolished in April 1999; while it operated tax was deducted from dividends at the corporation tax rate. As it was a withholding tax on income and as such was mostly reclaimed or offset against the recipients' liability to income tax, it produced almost no net government revenue. Net ACT revenue should therefore have been recorded as an income tax receipt, but in the tax and national data it was recorded as part of the revenue from corporation tax. As it lowered income tax receipts by nearly the same amount, this was highly misleading and greatly overstated the revenue from corporation tax before ACT's abolition.

**Table 2. Illustrating the apparent and effective rates of UK corporation tax before and after abolition of advanced corporation tax**

	Before April 1999	After April 1999
	Headline rate 32%	Pay-out ratio 50%
Profits before tax	100	100
Retained profits	50	50
Mainstream tax on retained profits	16	16
Mainstream tax on distributed profits	0	16
Dividend gross	50	50
ACT deducted at source	16	0
Income tax offset or reclaimed	16	0
Net tax revenue	16	32
Published revenue	32	32
Headline tax rate	32%	32%
Effective tax rate	16%	32%

The rates of income and corporation tax varied during this period as did the dividend pay-out ratio but the broad impact can be seen in Table 2, which shows that when ACT was abolished the effective rate of corporation tax was doubled. The impact was so misunderstood at the time that it was generally vilified, not because of its effect on investment and growth, but as a ‘raid on pension funds’, whose short-term returns varied with share prices and whose long-term return was unaffected.<sup>13</sup>

The abolition of ACT had the effect of doubling the tax on business investment and seems likely to have made a significant contribution to the dramatic fall in UK investment which occurred immediately after 1999, which is illustrated in Figure 6, and thus to the sharp fall in the UK’s growth this century. It does not of course demonstrate that the rise in corporation tax was the sole or even the major cause of the sharp fall in business investment, which varies over the short term particularly from fluctuations in ‘the animal spirits of entrepreneurs’. Claims that corporation tax has no impact on investment are often made because it is assumed that the rate fell from 32% in 1998 to 17% in 2020, whereas in reality it rose. In practice, as explained above, the effective rate

<sup>13</sup> Those who misunderstood the impact included the actuaries who advised Chancellor Gordon Brown that pension funds would suffer a £67 billion loss of the actuarial value of their assets as a net result of a combination of policies including the ACT change.

was sharply increased during the first decade of the twenty-first century. A significant part of the post-2000 fall in UK investment and growth must sensibly be attributed to the ill-considered decision to abolish ACT without halving the basic rate.

Figure 6 shows that business tangible fixed investment, and thus trend growth, has declined since 2000 in both the UK and the USA. It is probable that the disincentive to invest introduced by the bonus culture was a major cause of this weakness in both countries,<sup>14</sup> with the impact being partly offset in the USA by lower corporation tax and amplified in the UK by its increase.

### **Incentives and Investment**

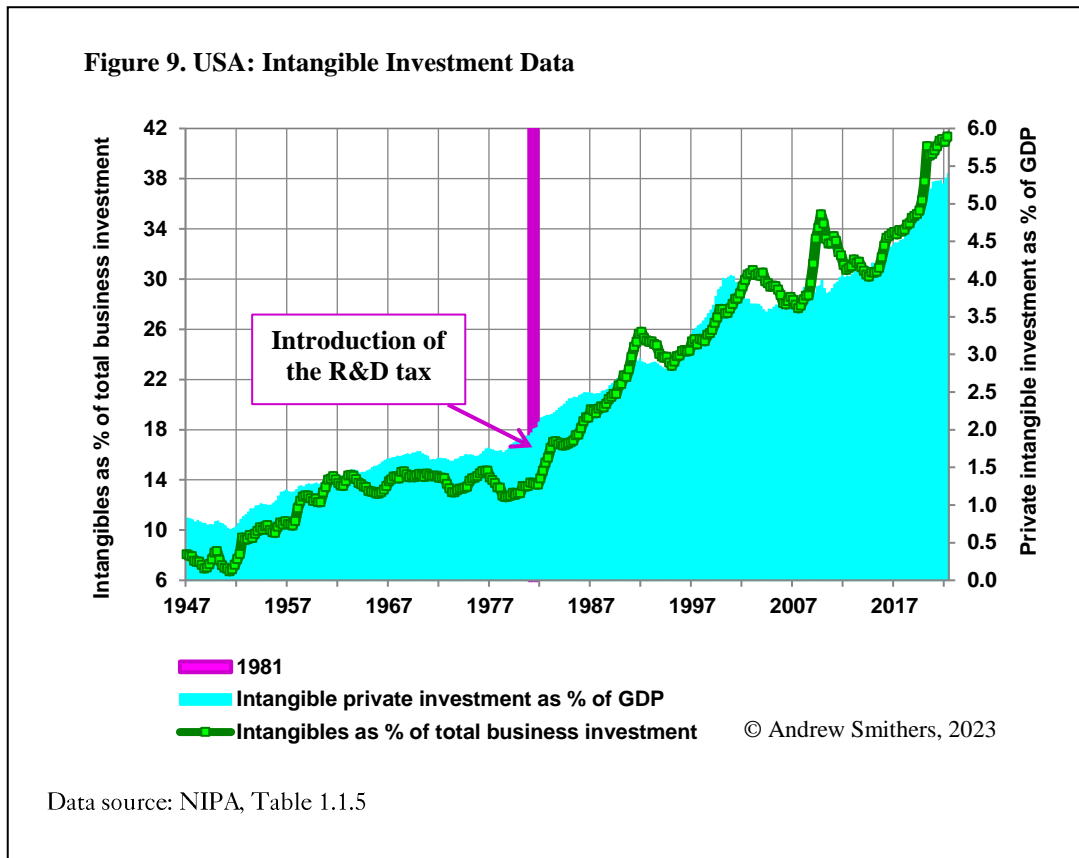
The importance that incentives can have on stimulating tangible investment is illustrated by their powerful impact on intangible spending. As Figure 9 illustrates, from 1961 to 1981 US business investment in intangibles fell slightly as a percentage of total investment but, following the introduction of the tax credit for research and development (R&D) in 1981, it has since risen from 13.7% to 41.4% of business investment and from 2.0% to 5.4% of GDP.

Tax credits for R&D are also available in the UK and the response has been similar, with intangible investment by non-financial companies rising as a proportion of total investment from 22.4% in 1997, the first year for which these data are available, to 36.2% in 2020.

One question raised by these data is why companies continue to spend so heavily on R&D when, unlike tangible investment, it has produced so little benefit in terms of output. To some extent the level of spending on intangibles may represent companies ‘gaming the system’ by recategorising to R&D expenditure formerly attributed to general management. But it is also likely that intangible spending is more defensive than productive, being seen, like advertising, as necessary for keeping up with the competition. When subsidised it is both cheaper and, since competitors’ costs fall also, more necessary.

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<sup>14</sup> *Productivity and the Bonus Culture* op cit.



The sharpness of the rise in R&D in response to the subsidy for it raises the reasonable expectation that one applied to tangible investment would also have a sharply positive impact on the growth of the capital stock and output. This is, however, subject to three important provisos:

- i. The effect would not be offset by other negative factors affecting investment, such as weak demand, or rising inflation with its resulting increase in the effective rate of corporation tax.
- ii. The credit is seen as a long-term policy change, since tangible investment takes time first to plan and then to implement.
- iii. The accounting treatment should be favourable, as explained earlier, and lead to a rise in EPS. The greater the increase in EPS, the larger will be the rise in investment.

## **For Shareholders, Growth is Painless rather than Beneficial**

The return on investment to shareholders as set out in the Gordon growth model is the dividend yield and the rate at which it rises. The amounts paid out and those spent on growth add up to profits after tax, but the return to shareholders is unchanged by the pay-out ratio. Cash can be distributed as dividends or buybacks, with the balance being available to finance fixed investment and, as this has no impact on their return,<sup>15</sup> the return to shareholders is thus unaffected by changes in national savings that are due to changes in the level of business savings and to the growth rate of the economy.<sup>16</sup> As the supply of labour is unchanged, faster growth in output due to higher investment induces a rise in labour productivity. Since the labour share of output is stationary, the growth rate of real wages accelerates. While higher corporate savings have no impact on shareholders' returns, they increase future incomes from employment and thus national welfare. Corporation tax has no impact on the return to shareholders but, by depressing investment, real wages grow less rapidly than they would otherwise have done.<sup>17</sup>

## **Management Comments on Investment**

Financial journalists and economists often refer to the views of management, as revealed by surveys, when discussing investment and growth, but it is startlingly naïve to judge motives from those claimed by the actors rather than from those revealed by their actions. The response of companies to change should be judged by what they do, not what managers say they do. It is clear from the stability of the real return on equity that companies have a stable long-term return on equity (the hurdle rate) of around 6.7%. The assumptions management make about the unknowable future will vary with swings in optimism—the animal spirits of entrepreneurs—but, over time, projects are approved which on average match this hurdle rate.

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<sup>15</sup> Chapter 4 of Smithers (2022) shows that pay-out ratios move in line with the growth of the economy (illustrated in Figures 6 and 7).

<sup>16</sup> Chapter 16 of Smithers (2022) shows that returns on equity are the same in all countries, in the absence of capital destruction in war or government appropriation. The lack of any relationship for individual countries between growth and returns is illustrated in Figure 38.

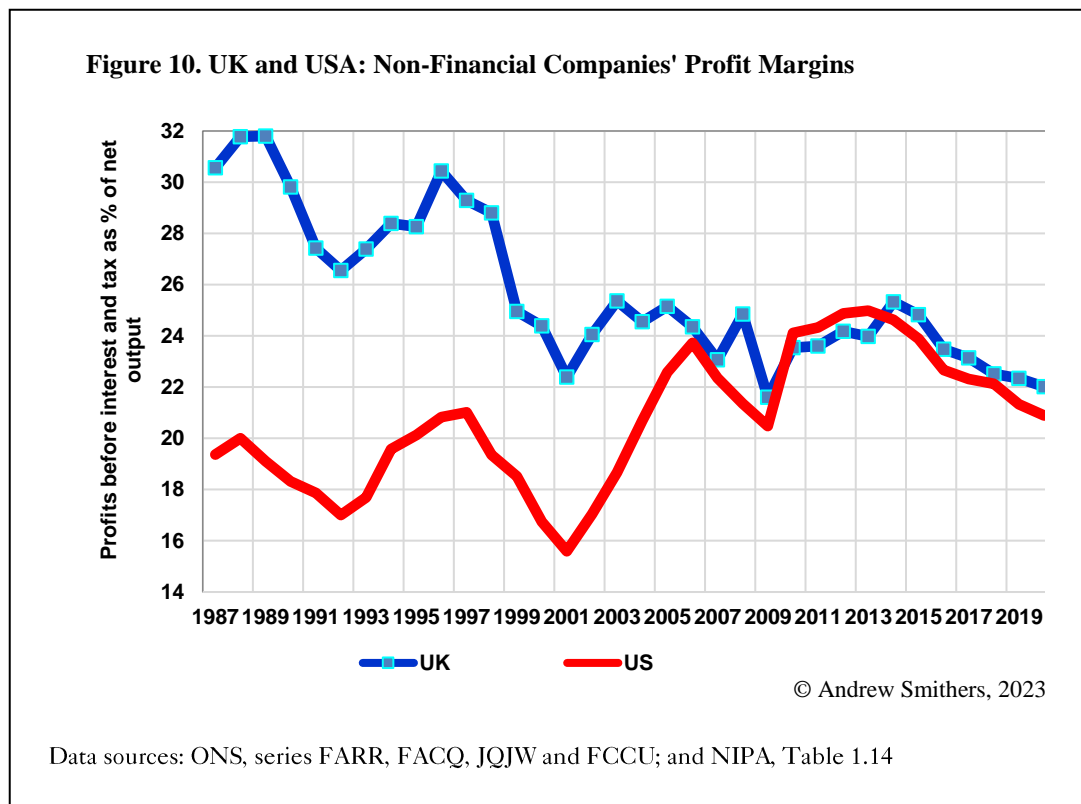
<sup>17</sup> The rise in intangible investment relative to tangible has had a similar effect on labour welfare as shown in *Labour share decline and intellectual property products capital*, (2020) by Dongya Koh, Raul Santaeulàlia-Llopis and Yu Zheng, *Econometrica* 88, 6. It should, however, be noted that the title can readily be misunderstood as the paper does not claim that the current labour share declines, only that its present value falls as labour welfare suffers from slower growth of real wages.

When interviewed, managers wish to present their actions in a good light. They like therefore to give the impression that their actions are based on selfless objectivity and sometimes, perhaps often, they no doubt are. But the overall result on business decisions is clearly shown by the data on long-term equity returns. In the shorter term decisions will also be heavily influenced by the perceived self-interest of managers and this is heavily influenced by the method whereby they are paid. The bonus culture, which arrived with the dramatic change in the level of remuneration and its bonus element in the 1990s, changed incentives and was designed to do so. This altered the balance of incentives away from investment, with its short-term costs and long-term rewards and therefore depressed its level.<sup>18</sup> Such incentives seem, however, to be invariably ignored in all management comments on their decision making.

Managements have an easier life in a slowly growing economy than in a faster one. The return on equity does not vary with the rate of change of EPS. Without growth this is increased by buybacks, but with growth it requires the riskier decisions needed for investment. If corporation tax were borne by companies on behalf of shareholders, managements would complain vigorously about it. Managers do not, however, appear as indifferent to reduced investment subsidies as they are to increases in corporation tax; this probably reflects both the widespread mistake in thinking that the tax is paid by shareholders and because investment decisions appear less risky if the cost is subsidised.

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<sup>18</sup> *Productivity and the Bonus Culture* op cit.



When asked about their short-term investment decisions managers often put little if any emphasis on levels of corporation tax but much on the factors which affect their current level of optimism, which governments cannot usually influence. For example, profit margins are an important constituent of the current return on equity and thus on optimism. While margins are mean-reverting, they vary around their average and, as Figure 10 shows, those in the UK and the USA can diverge significantly.

The weight given by managers to differing influences reflects their wish to sound good, by emphasising their attention to the public rather than their self-interest and their short-term concerns. They are largely indifferent to the level of corporation tax, but very concerned with any threat to salary constraints or bonuses. Good intentions are not absent, but they do not drive aggregate behaviour.

Governments can only encourage investment with policy measures which they can control. This includes corporation tax and investment credits and does



not include profit margins or most of the other factors which affect business optimism policy.

### **Short-Term Policy Adjustments**

Having three policy instruments to control the economy would allow all three possible disequilibria to be avoided, but success will depend on each instrument being used correctly. The way in which demand, money supply and asset prices respond to each policy instrument must therefore be understood. An additional requirement is that, when short-term adjustments are needed, they should usually be addressed by changes in monetary policy, as it is the only policy instrument which can be easily and quickly changed. Fiscal policy cannot be changed rapidly because it involves parliamentary approval for changes in taxation and government spending. Tax policy is even less easily changed as it requires changes in taxation on both investment and consumption. With the important proviso that monetary policy is the preferred instrument for short-term demand management, the policy appropriate to control the three potential disequilibria of (i) demand, (ii) money supply and (iii)  $q$ , can be assessed in view of their response to the three available policy instruments.

#### **Controlling demand**

To avoid secular stagnation tax policy needs to provide permanent and sufficient stimulus to the economy, so that short-term fluctuations in demand can be offset by variations in short-term rates. These must therefore vary around an average level, which is well above that at which liquidity traps arise. As all major developed economies are probably still suffering from a prolonged trap, tax policy is needed now in them all. If inflation is around 2%—the usual target—real rates will be negative if nominal ones are lower. Tax policy thus needs to provide sufficient stimulus for nominal short-term rates in the future to average around 3%. Monetary policy should then be usually capable of managing demand by varying rates between 2% and 4% but should not be used to boost demand if it would take nominal interest rates below 2%.

In the absence of a liquidity trap demand responds to changes in monetary policy. Maintaining an *ex ante* net savings balance at zero can therefore be achieved by monetary policy alone. Reducing interest rates, however, boosts  $q$

and, if it is elevated, fiscal or tax policy must then be used rather than monetary policy if demand needs boosting and the correct choice depends on whether the liquidity trap is a temporary, cyclical one or a prolonged, more secular one—as explained earlier, a structural liquidity trap is easily recognised as it occurs when fiscal policy ceases to be politically acceptable, and  $q$  is above its average.

### **Controlling money supply**

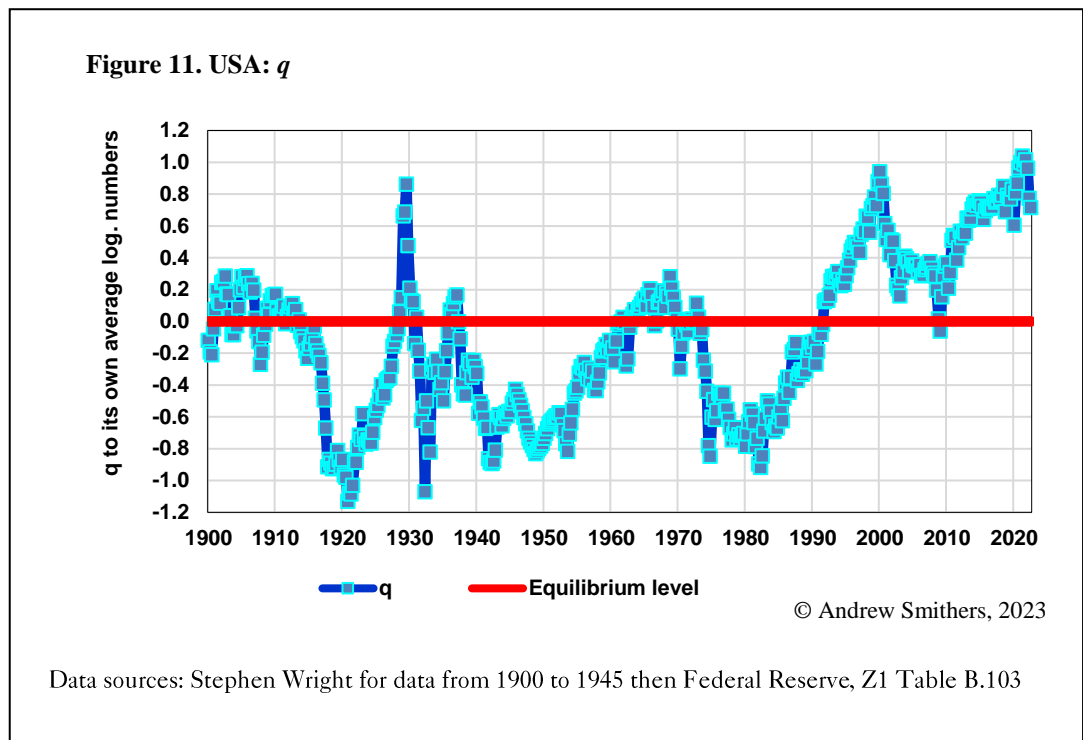
In 2013 M2/GDP rose to 10% above its average since the data series starts in 1963 and Figure 1 suggests that at this level further expansion must be halted either by raising short-term interest rates or by reducing the monetary base through quantitative tightening (QT). Rising interest rates will reduce the demand for bank borrowing and slow the growth of broad money. QT does this through reducing bank reserves. While there seems no obvious upward limit on the ratio of bank reserves to total bank assets there must be a lower one, as banks must be able to transfer funds on demand, and their reserves with the central bank ensure that they can do so without borrowing in the inter-bank market. Broad money consists mainly of deposits with banks and, as the ratio of commercial banks' deposits to their reserves with the central bank rises, banks will find that they have more frequent need to borrow in the inter-bank market, pushing up its cost. At some point this will drive banks either to replenish their reserves by selling bonds or to reduce their lending. Bank lending and thus money supply can still expand if reserves with the central bank are replenished by bond sales but, as this source of supply diminishes, the disincentive for increased lending will rise and, as rates rise, the incentive to borrow will decline.

The choice between raising interest rates and QT depends on the level of the monetary base and the growth rate of broad money. Because of its possible effect on future monetary growth and the clear impact on current  $q$ , M0 should never be allowed to expand as it has done since 2008 (Figure 2) and, independent of decisions over short-term interest rates, it now needs to be brought down. Broad money has, however, fallen over the past 12 months and reductions in M0 may be all that is needed to bring M0/GDP back to average level (Figure 3). As we have no experience of how to unravel the past errors of monetary policy, we cannot know whether further increases in short-term interest rates are desirable, but we can be sure that QT should continue until M0/GDP is back to its average level.

The impact on inflation and demand as money supply slows is thus uncertain but were both M0/GDP and M2/GDP around their average levels, a decline in money growth would be undesirable as it might indicate future demand weakness. If inflation is already at or below target, a boost to demand will be justified but, if interest rates are down to 2%, it will be unwise to lower them further unless  $q$  is near or below average. A demand boost from fiscal policy will then be appropriate if the weakness is cyclical but one from tax policy will be needed if it is structural.

### Controlling $q$

As Figure 11 illustrates, it is rare for  $q$  to rise to dangerous levels. On only three occasions, 1929, 1999 and now, has the US stock market been overvalued by more than 100%. It has also had precipitous falls in response to sharp rises in interest rates—1904 (1.78) to 1907 (7.01), 1915 (1.92) to 1920 (7.74), 1935 (0.56) to 1936 (0.96) and 1968 (5.66) to 1969 (8.62)—but in none of these instances was  $q$  more than 35% overvalued (log. ratio 1.30). It is therefore reasonable to assume that share prices will only need to be restrained when  $q$  is above this level. Despite such occasions being rare, the great damage done to the economy after the subsequent falls, notably in the slump, shows that they should be avoided.



If  $q$  rises towards a 35% overvaluation policy to restrain further rises should be implemented by raising interest rates. Companies seek to limit their interest payments to 10% of their profits before interest and tax, so they seek to reduce their leverage when interest rates rise.<sup>19</sup> Managements are loath to cut dividends as this produces very negative reactions from shareholders, so short-term reductions in leverage are accompanied by fewer buybacks or debt-financed acquisitions and by more equity issues. The supply of equity thus rises and, with demand for it unlikely to change, share prices fall and the overvaluation of  $q$ , and the risks this entails, will be reined in. At the same time a boost to demand will be needed to offset the impact of the increase in interest rates either through fiscal or tax policy depending on whether the liquidity trap is cyclical or structural.

<sup>19</sup> See Chapter 4 and Figure 1 of Smithers (2022).

## Policy Implementation

The first essential step is to end the long structural liquidity trap (secular stagnation) and to prevent it returning. This requires an aggressive tax policy. As we need more growth, taxing investment is foolish and so, net of the cost of any investment subsidy, the revenue from corporation tax should be at or below zero. Tangible business investment in 2021 was 7.2% of GDP in the USA and 5.2% in the UK and the revenue from corporation tax was 1.20% (USA) and 1.84% (UK) of GDP respectively, which is also the amount by which taxes falling on consumption would need to rise to offset the reduction in government revenue (Table 3).

**Table 3. Estimated levels of tax credits in UK and USA required to offset cost of corporation tax**

	US 2021 (\$ billions)	UK 2021 (£ millions)
GDP	23,315	2,270,246
Tangible business investment	1,761	125,353
Total business investment	2,993.7	207,091
Tangible %	58.82	60.53
Tangible as % of GDP	7.55	5.52
Non-financial companies (UK 2020)		
Corporate fixed investment	2,155	175,521
Corporate tangible fixed investment	1,268	111,896
Corporation tax (net of tax credits)	281	41,880
Corporation tax as % of tangible investment	22.2	37.4
Corporation tax as % of GDP	1.2	1.84
Credit % of investment needed to offset tax revenue	0.27	0.69

Tax credits equal to 22% (USA) and 37% (UK) of non-financial corporate investment respectively should thus eliminate the destructive effect of taxing investment. Tangible investment includes spending on equipment, buildings and transport equipment. There is a case for excluding transport, on the grounds that company money spent on jets and Rolls Royce cars contributes more to management ease than labour productivity. But transport is essential for moving supplies of raw materials and goods and should therefore be included.

Expenditure on buildings is often essential when new equipment is installed, sometimes for considerations of safety, so credits should not be limited to those on non-transport equipment.

A shift in government revenue to taxing consumption rather than investment is unlikely to have much impact on demand for at least a year as capital spending takes time to plan and implement. In the short term it will thus have little or no impact on monetary policy, but over the longer term the boost to investment over growth will mean that interest rates will be higher than they otherwise would have been. The rise will not be as great as the increase in investment because, as explained earlier, corporate savings rise with growth and business investment, but will be sufficient to raise household savings, which are needed to finance the proportion of new business investment which will be debt-financed—though this will also fall as bond yields increase due both to higher short-term interest rates rise and a steeper yield curve as QE unwinds.

Looking longer-term, a strong boost from tax policy will raise the average levels of short-term interest rates and long-dated bond yields and allow short-term changes in monetary policy to control demand, but it will remain essential to prevent money/GDP or  $q$  from becoming elevated, or interest rates from falling below 2%.

If  $q$  rises towards an overvaluation of 35% it will indicate the risk of a financial crisis (Figure 12), and if the ratio of money/GDP rises above 1.6 it will be a danger signal about future inflation (Figure 1). In either circumstance, as explained, monetary policy will need to be tightened, combined with an offsetting boost to demand from tax or fiscal policy with the choice depending on the nature of the liquidity trap.

## **The Natural or Neutral Rate of Interest**

While the twenty-first century can be described as having suffered either from a secular liquidity trap or from secular stagnation, the terms appear open to varied interpretations. One difference is whether the need to boost demand to avoid a net *ex ante* savings surplus can be met by boosting investment through tax policy or is a hopeless condition arising in which investment cannot be stimulated so long as the rate of interest is below its ‘natural or neutral’ rate. One approach describes this as the situation

in which there is insufficient investment demand to absorb all the financial savings done by households and corporations... For secular stagnation to be a plausible hypothesis, there have to be good reasons to suppose that neutral real interest rates have been declining and are now abnormally low... (indeed) so low as to risk financial bubbles.<sup>20</sup>

The real rate of interest cannot reasonably be described as having a neutral or natural level unless it is determined endogenously and this is incompatible with the evidence

- i. that the real return on equity is stationary and that
- ii. short-term interest rates, long-bond yields and the return on equity vary in unrelated ways<sup>21</sup> and
- iii. the returns on cash and bonds vary with exogenous factors including fiscal policy.<sup>22</sup>

There is therefore no natural rate of interest but there is, as Figure 4 shows, an endogenously determined and thus ‘natural’ real return on equity.

The difference between a natural rate of interest and a natural return on equity is part of the conflict between the consensus model and the evidence from equity market returns. The CM assumes that business investment depends on the ‘user cost of capital’: when this is below the expected return business will invest but not otherwise; and that the user cost of capital varies with short-term interest rates, which is assumed to be endogenous. The CM has no explanation for the stationarity of the real return on equity. The stock market model (SMM) explains the stationarity of the real return on equity by assuming that business invests when the expected return on new investment is at or below the mean-reverting long-term return of around 6.7%. It follows in the SMM that business does not respond to changes in the cost of equity arising from swings in  $q$  around its average. This is a testable hypothesis which is confirmed by the data;<sup>23</sup> whereas the CM’s assumptions that profit maximisation and the user cost of capital vary with real short-term interest rates conflict with the data.

Economic theoreticians have often sought to establish models in which the rate of interest can be shown to be endogenous and, as far I can find, their endeavours have proved fruitless. Hankering after the illusion of a natural rate of interest has caused economic theory in this area to stagnate and we can

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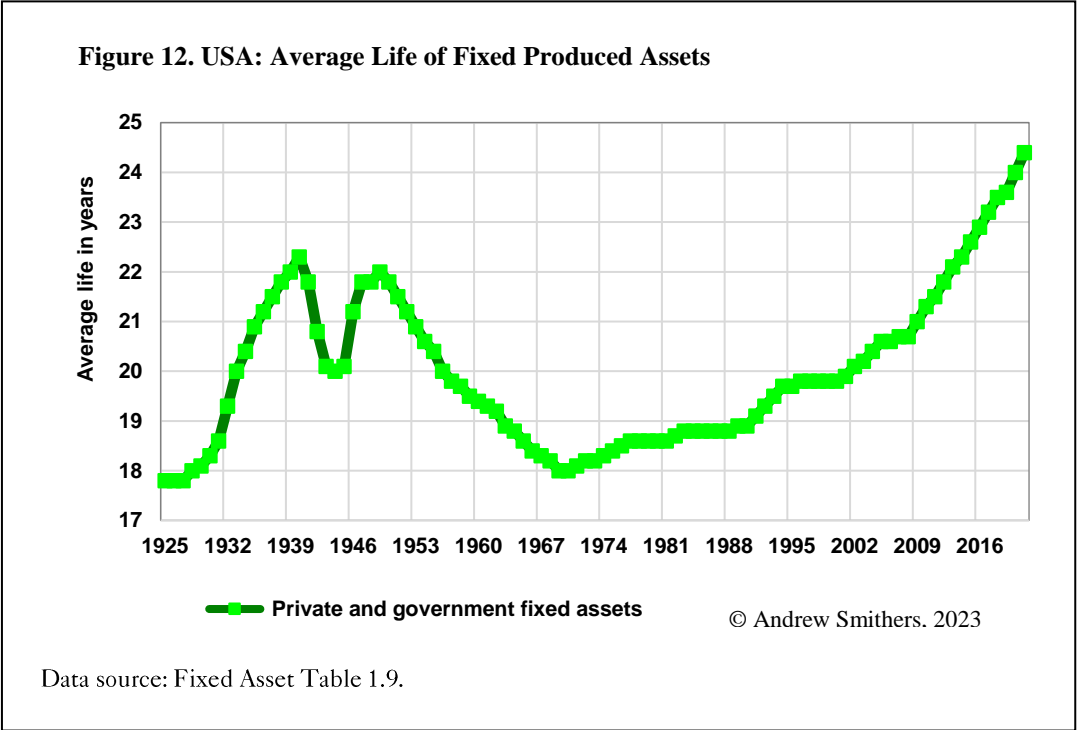
<sup>20</sup> Summers op cit. (2017).

<sup>21</sup> Chapter 9, Smithers op cit. (2022).

<sup>22</sup> Chapter 14, Smithers op cit. (2022).

<sup>23</sup> Chapter 52, Smithers op cit. (2022).

reasonably expect that this would be replaced by rapid progress if the assumption that interest rates are the primary factor in finance is dropped in favour of giving that place to the return on equity.



### Investment and Trend Growth

In the very long run growth depends on improvements in technology. The more we exploit our current knowledge the lower the return on it will be. Leverage cannot and should not rise too far nor should interest rates be too low so, as current technology becomes fully exploited, for an adequate equity return to justify new investment depends on either advances in technology or cutting the net revenue from corporation tax. While this can be negative it puts a limit on the extent to which we can stimulate growth without more advanced technology. But this barely affects countries whose productivity is below the top level and, even in the USA, the scope for greater investment to speed growth is likely to be huge because the average life of the US capital stock is now over 24 years,



compared with only 18 years in 1968 (Figure 12). The technology which the USA currently employs is thus on average six years older than that used in 1968.

It is therefore likely that we have a large opportunity to improve productivity simply by cutting the net revenue from corporation tax, so that investment rises and, as the average age of the capital stock falls, the efficiency of equipment, being more modern, will rise.

### **Changing the Form of P&L Accounting Data to Boost Investment**

When economists discuss productivity with managements or share analysts it is common to encounter much misunderstanding, which in my experience largely arises from a confusion between ‘profit margins’, which are profits after depreciation as % of output, as shown in Figure 10, and ‘sales margins’, which are the same profit figure as % of sales. Changes in profit margins and sales margins can differ greatly,<sup>24</sup> and those in sales margins are regularly assumed to be very important and are often thought to indicate improved productivity. This is not only misleading, it distracts managements’ and analysts’ attention from output and thus from genuine improvements in productivity (output/per hour or per employee).

There is an old adage that what gets measured gets managed and it is probable that companies’ attention to productivity would rise sharply if P&L accounts included data on employment, giving the numbers employed, the hours worked and costs of employees’ remuneration. Unlike many proposals for more data in company accounts, this would be virtually costless as the information must be readily available.

Requiring companies to publish these data is thus likely to make a contribution, which could be significant, to improving productivity at almost no cost. It would therefore be foolish not to introduce this change.

### **Conclusion—Folly and Inertia**

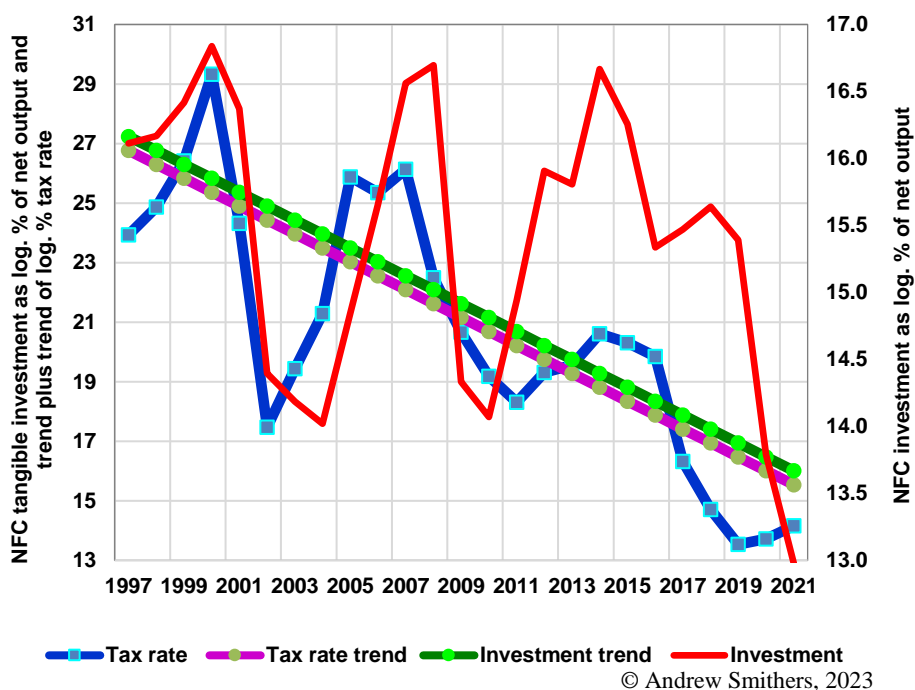
In addition to the way tangible business investment is taxed or subsidised, its level depends on many things including the way technology advances, the disincentives of the bonus culture, and expectations—the animal spirits of

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<sup>24</sup> Chapter 21, particularly Figures 58 and 59, Smithers op cit. (2019).

entrepreneurs, over which governments have little if any influence. All we know is that investment will be higher than it would otherwise have been if it is subsidised and not taxed. As we need more investment to avoid inflation and financial crises, we have been foolish to tax it and should now subsidise it. The failure to appreciate the damage this has caused to our future prosperity is because corporation tax is widely and wrongly believed to be paid by shareholders and follows from ignoring the data on the return on equity.

**Figure 13. USA: Non-Financial Tangible Investment and Tax Rate**



Data sources: Federal Reserve, Z1 Table F.103; and NIPA, Tables 1.1.5 and 1.1.4

Figure 13 shows that this century has seen declines in business investment and in the effective rate of corporation tax.<sup>25</sup> It also shows that the trend of the decline in each case has been very similar, as have the swings from year to year. This does not prove that the decline in the tax investment rate has boosted

<sup>25</sup> I have used logarithmic percentages so that the proportionate changes in tax and investment are more easily compared visually.

business investment above the level it would otherwise have been, but it is consistent with such an assumption. The often heard argument that the fall in corporation tax has failed to boost investment in recent years is therefore invalid and we know from the long-term data (Figure 4) that would indeed be improbable. The conclusion is confirmed by the data set out in Figure 6 which show that investment has held up in the United States more than it has in the United Kingdom where, due to the abolition of ACT, the rate of corporation tax has risen since 1997.

To jump-start investment probably needs a greater immediate incentive than will subsequently be required to maintain the improvement, because the bonus culture has reduced the incentive to invest, not only by increasing the short-term reward for increasing EPS but also by reducing the risk that competitors will raise their spending on tangible capital. The bonus culture has been a vital and possibly the most important reason for the low level of tangible investment this century. The use of tax credits will reverse the impact of bonuses from inhibiting to encouraging capital spending, and we should make the initial change particularly strong by making managements fearful that their competitors will be increasing their level of investment.

Despite the urgent need for more business investment, tax changes proposed in both the United Kingdom and United States will depress it to a lower level than it would otherwise be. The associated failure to use tax policy as a tool of economic management will also make it more difficult to avoid inflation and financial crises. The folly of government policy is due to a poor understanding of economics and is therefore unlikely to change until the current consensus model is scrapped and replaced.

The poor management of the economy this century has damaged liberal democracy; voters are angry and faith in experts has fallen. But, as we have seen with COVID, scientists in other disciplines have shown a high degree of competence; the single failure has been in economics. The damage has come not only from the jump in inflation, for which poor policy is only partly responsible. The damage from weak growth is much greater than generally recognised. When income growth stagnates, those who lose out roughly equal the number of winners, but the utility of changes in incomes is asymmetric; the pain caused by a reduction in income is many times greater than the pleasure felt from an equivalent rise.

We need to return to significant growth combined with low and stable levels of inflation and unemployment. Poor policy has arisen more from poor theory than incompetence in its execution, and change requires accepting that we live in a multi-equilibria economy, which requires the CM to be scrapped.

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