

The Falling Rate of Profit Explains Falling US Growth

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Abstract

The rate of growth has been in long term decline in the US since the end of WWII. But some measures of the rate of profit show a significant recovery in the 1990s that persists through the 2000s, in the lead up to worst economic crisis since the Great Depression.

This paper shows that existing measures of the rate of profit fail to accurately account for the drain on surplus value imposed by government spending, and the effects of wage earners' saving on the surplus value available to the corporate sector. It proposes a new measure of the average rate of profit that takes these into account. Unlike existing measures, it has a very similar trend to the rate of growth of net output, and declines in the lead up to the Great Recession. This bolsters the explanatory power of Marx's law of the tendential fall in the rate of profit.

Marx's law of the tendential fall in the rate of profit (LTFRP) continues to create considerable controversy. Heinrich (2013), for example, argues that Marx fails to demonstrate that the law cannot be indefinitely counter-acted by increases in the rate of surplus value, and suggests that Marx himself later came to question it. His intervention has been dealt with comprehensively by Kliman et al (2013) and Roberts and Carchedi (2013), although they differ over precisely how to interpret the law. Until relatively recently, many accepted that the Okishio Theorem (Okishio 1961) logically disproved the law, and that the transformation problem made it impossible to formulate Marx's labour theory of value (on which the law is based) in an internally consistent fashion. A series of publications summarised and explained most clearly in Kliman's *Reclaiming Marx's 'Capital'* (2007) have shown that, by adopting a temporal single system interpretation, it is possible (and indeed reasonable) to interpret Marx's theory of value such that neither of these propositions is true.

There is also controversy over whether the law can explain the Great Recession. Among contemporary Marxists there is considerable debate over whether the US average rate of profit did in fact decline, or at least remain persistently low, in the lead up to the Great Recession. Different measures of the rate of profit give significantly different results, and have been used to reject or accept the usefulness of Marx's law for explaining the economic crisis.

Debate has mainly focused on whether it is better to use a historical cost or a current cost measure of fixed assets. This paper will argue that there is an empirically more important problem with existing measures of the rate of profit than whether to measure capital advanced at current cost or historical cost. This problem concerns the *numerator* of the rate of profit. Implicitly, existing measures assume that debt-financed government spending is not a drain on the surplus value available to the corporate sector (among other problems) because they do not account for the way in which borrowing and lending can affect incomes without affecting the production and expenditure of surplus value. In so doing, they incorporate what I call 'fictitious profits' (and fictitious losses) in the numerator of the rate of profit. This paper proposes a way to estimate 'non-fictitious' corporate profits: that is, the surplus value appropriated by the corporate sector. This produces measures of the rate of profit that fit considerably more closely with the growth rate of real corporate output than existing measures, regardless of whether we use a current cost or historical cost denominator.

The approach also suggests a possible explanation for the substantial increase in the ratio of US dividend payments to fixed assets since the 1980s.

Existing measures of the profit rate

First, there are 'broader' and 'narrower' measures of the numerator of the rate of profit. One very broad definition of 'profit' is gross domestic product less depreciation of fixed assets and compensation of employees. Then there is a list of other expenses that may or may not be treated as deductions from this 'broad profit': taxes on production less subsidies, net proprietors' income (i.e., income for owners of non-corporate businesses), net interest payments (interest payments to recipients other than domestic businesses), net rental income of persons (which is rent paid on the housing stock, including an imputation for the rent that the national accounts treat owner occupiers as 'paying to themselves'), current surplus of government enterprises, and taxes on corporate profits.¹ If we deduct all of these, we arrive at what the national accounts call 'corporate profits after tax'.

The denominator of the rate of profit, 'capital advanced', is generally taken to be corporate fixed assets (though some include inventories). The US national accounts offer two measures

¹ This list is not exhaustive.

of corporate fixed assets used by Marxists: 'current cost' and 'historical cost'. The historical cost measure is the original purchase price of each asset less depreciation according to a model (and any extra destruction caused by disasters or early retirement of assets). The current cost measure is equal to the historical cost measure multiplied by the current value of a price index for the asset in question (e.g., a construction price index for a building) divided by the value of that price index at the time the asset was originally produced. It can also be considered the 'replacement cost' of the assets (US Bureau of Economic Analysis 2003, M8–M10).

Basu and Vasudevan (2012) measure the US rate of profit using almost all possible combinations of the methods listed above (and some I have not listed). They conclude

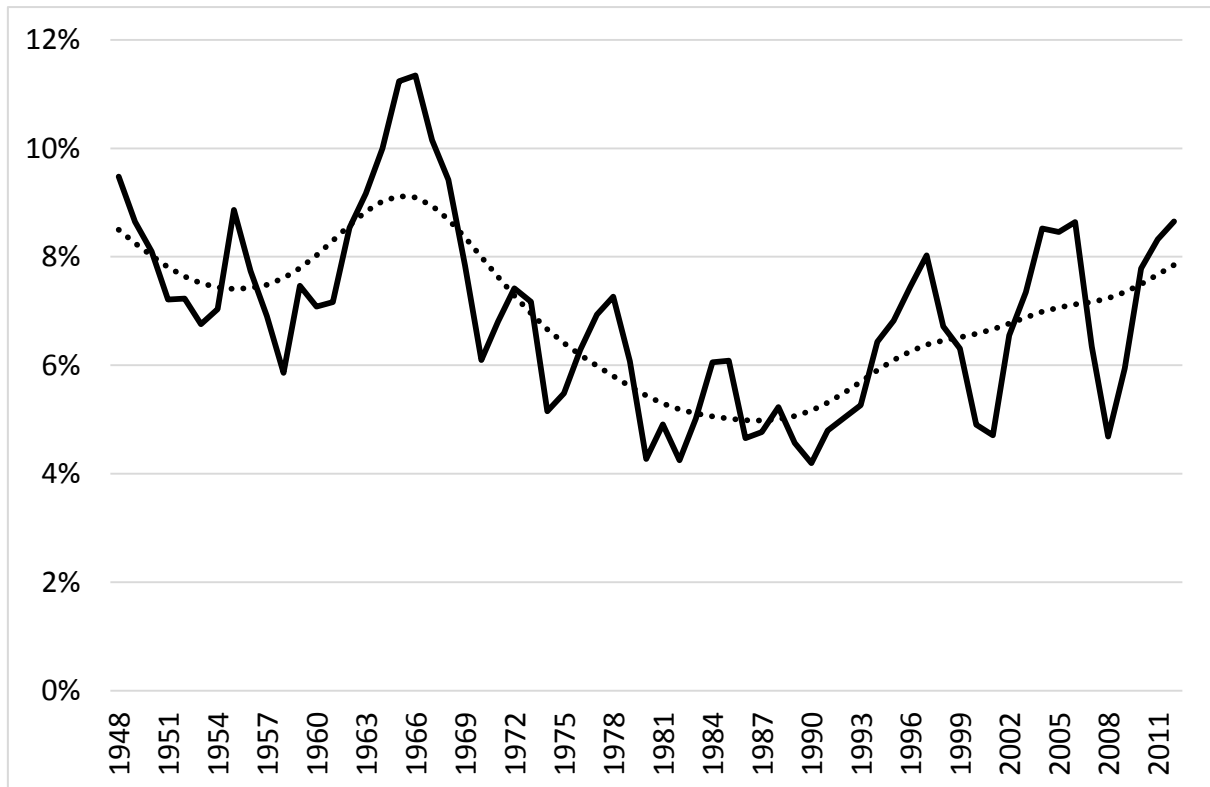
all the measures display similar trends: there is a break in the declining trend in profitability in the early 1980s; the subsequent period is marked by either a trendless or a slowly rising trend in profitability. The only exception is a measure of the rate of profit that uses historical cost valuation for the capital stock and before-tax (both direct and indirect taxes), before-interest profit flow; this measure displays a secularly declining trend for the whole post-war period. (Basu and Vasudevan 2012, 84)

However, their method of determining trends is problematic. They arrive at this conclusion by calculating the linear trend in the rate of profit from the early 1980s onwards. But when using cyclical data such as their rate of profit results, it is easy to mistakenly find a 'trend' when in fact there is none, or to miss trends that really do exist. For example, one could take a sine wave, calculate the linear trend between a trough and a peak (or between a trough and its average value) and conclude that the data had an upward trend over that period (Kliman 2011, 104–105). But over a longer period, a sine wave is trendless. For this reason, it is not good practice to determine medium- to long-term trends in cyclical data by calculating linear trends over periods chosen by the researcher, or between a trough and a point in the series which is not a trough. Because Vasu and Basudevan start with a trough in the 1980s, their results are biased towards finding an upward trend when there is none, or towards not finding a downward trend when one does in fact exist.

Nevertheless, some of the measures of the rate of profit listed above *do* have an upward trend in the lead up to the Great Recession, even if we use a better method to calculate the trend. Figure 1 below gives the rate of profit calculated as the ratio of corporate profits after tax to corporate fixed assets at current cost. It also includes a trend line calculated using a Hodrick Prescott (HP) filter (Hodrick and Prescott 1997).² This is a more reliable method than calculating the linear trend over a period chosen by the researcher, and less open to manipulation.

² I have used a value of 100 as the smoothing parameter for the filter for all the series calculated here, following Backus et al (1992), but there is no consensus over which value is best for annual data such as this.

Figure 1: Narrow, current cost rate of profit



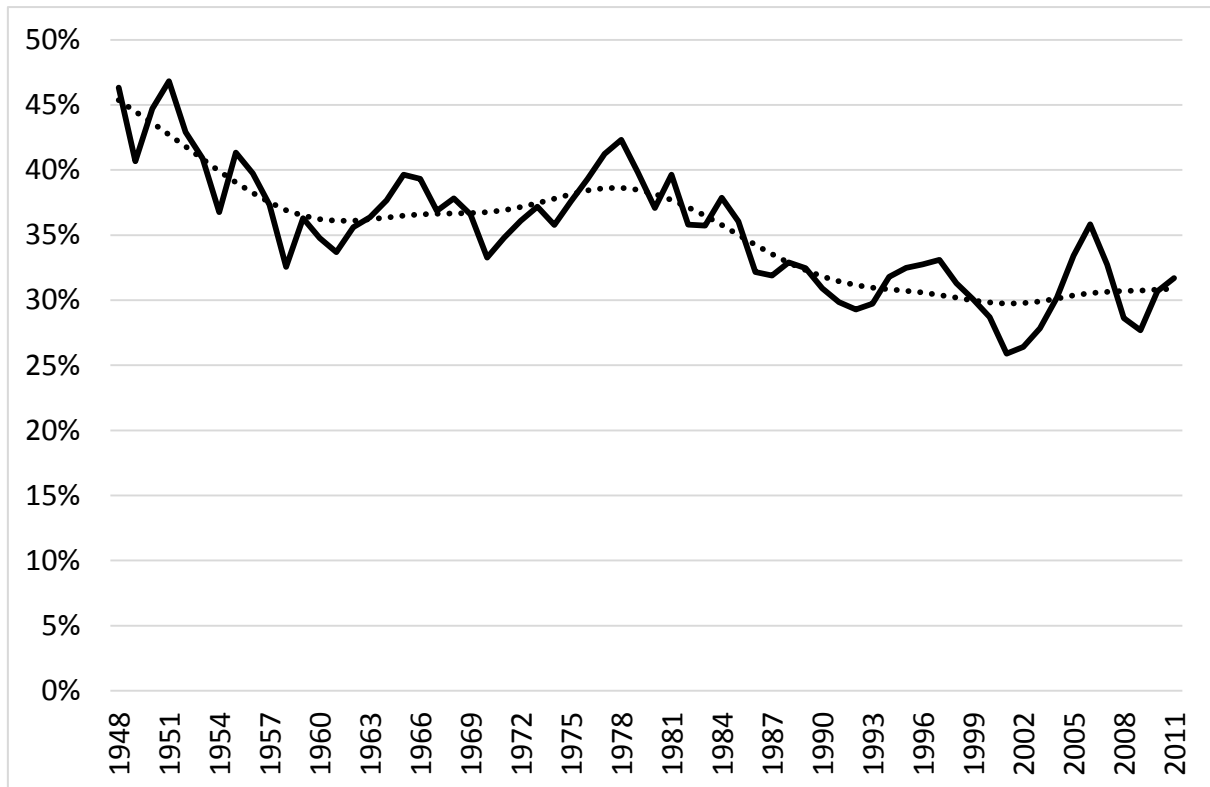
After-tax corporate profits (US National Income and Product Accounts (NIPA) table 1.14, line 13) / Corporate non-residential fixed assets at current cost, excluding intellectual property (US Fixed Assets and Consumer Durable Goods (FA), table 4.1, line 17 – line 20) (US Bureau of Economic Analysis 2013a; US Bureau of Economic Analysis 2013b).³

The rising trend since around 1990 is clear.

At the other extreme, if we use the broadest measure of profit (GDP less historical cost depreciation less compensation of employees) and corporate fixed assets at historical cost, then there is a clear downward trend during the 1980s and 1990s, and the rate of profit remains low in the lead up to the Great Recession, as we can see from Figure 2 below.

³ In all cases the denominator of the rate of profit is fixed assets at the end of the preceding year, as is consistent with a temporal interpretation (Kliman 2010).

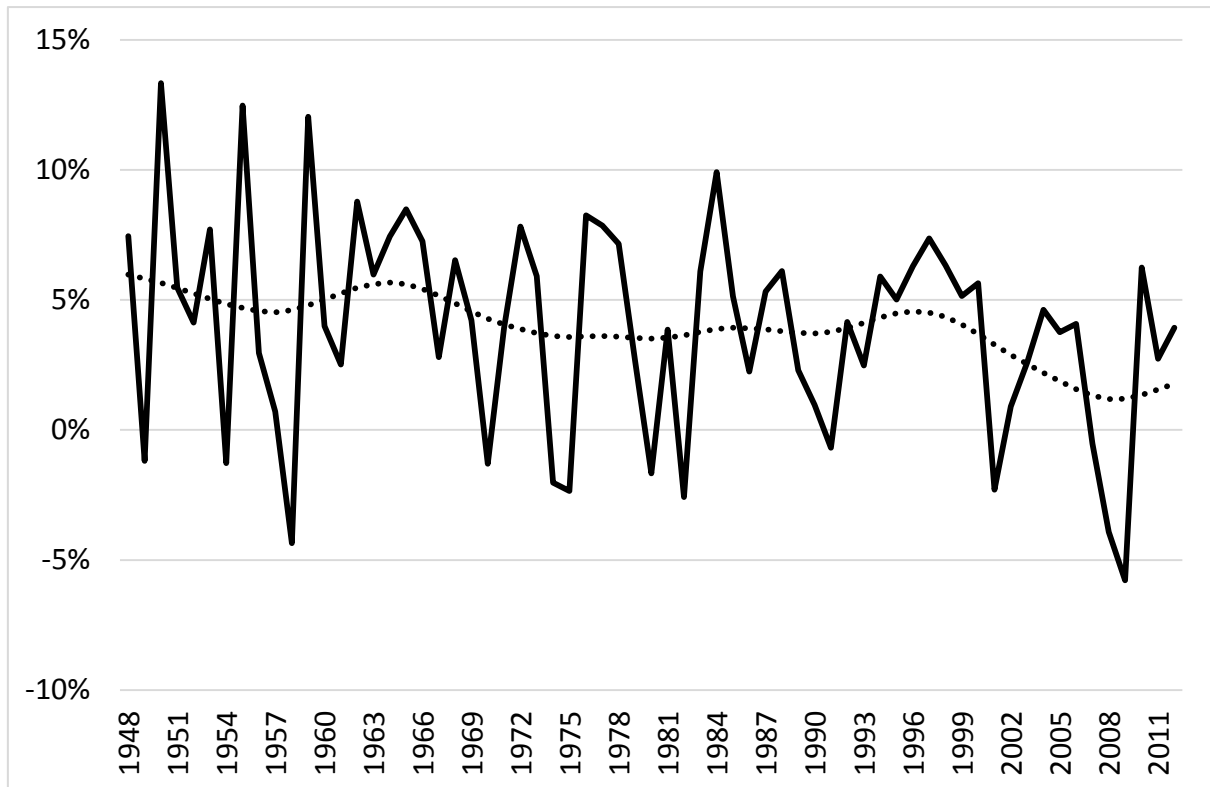
Figure 2: Broad, historical cost rate of profit



[Corporate gross value added (NIPA 1.14, line 1) – Historical cost depreciation (FA 4.6, line 13) – Compensation of corporate employees (NIPA 1.14, line 4)] / Corporate non-residential fixed assets at historical cost (FA 4.3, line 17 – line 20).

Duménil and Lévy (2011, 152), who use current cost measures of the rate of profit, argue there has been a significant divergence between the rate of profit and the rate of growth of real corporate output. We can see this by comparing the trends in Figure 3 below and Figure 1 above.

Figure 3: Growth rate of real corporate net value added



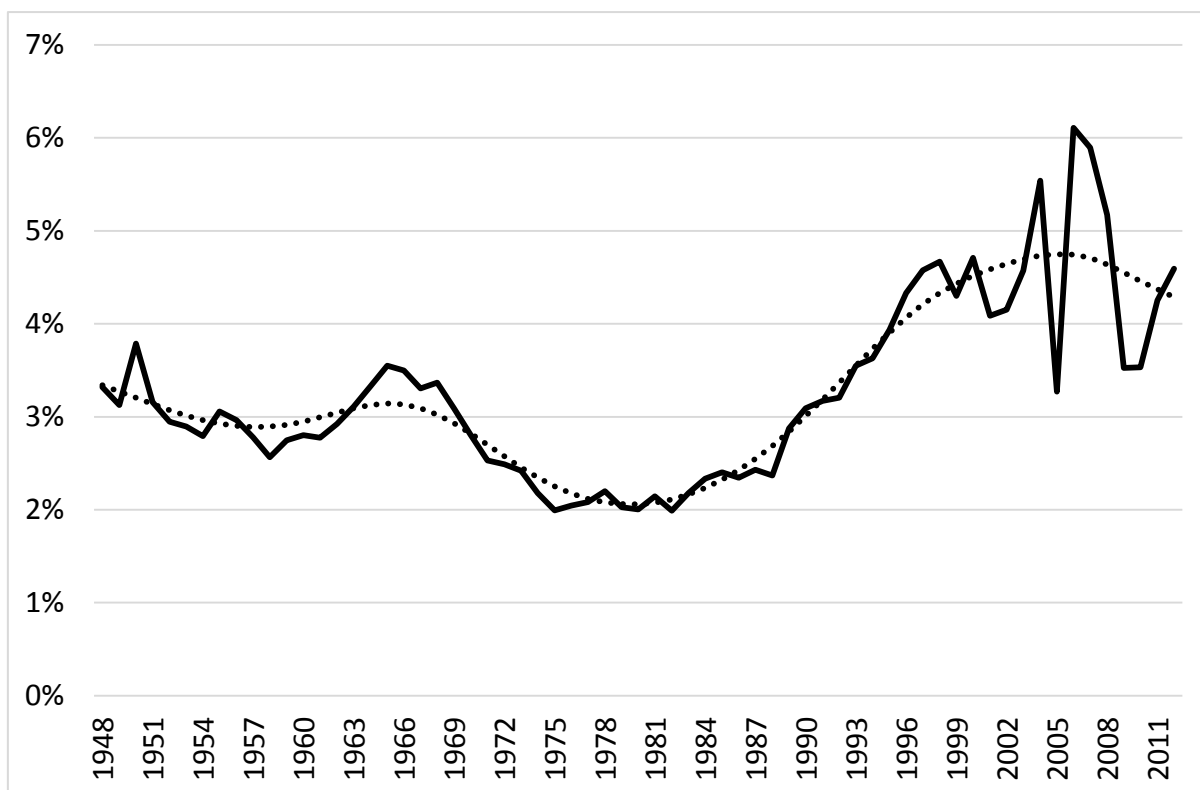
Rate of growth of: real gross value added of non-financial corporate business (NIPA 1.14, line 41) plus gross value added of financial corporate business (NIPA 1.14, line 17) deflated by the GDP price index (NIPA 1.1.4, line 1) less consumption of fixed capital for corporate business (NIPA 1.14, line 2) deflated by the GDP price index.

It would be surprising if the rate of profit really did diverge from the rate of growth of corporate output. If measured properly, the rate of profit can be thought of as the ‘maximum’ rate of growth of capital advanced, since it is the rate at which capital advanced grows if all surplus value is invested. The rate of growth of capital advanced should, in turn, be fairly closely connected to the rate of growth of real output, since investment in more constant and variable capital makes it possible to produce more output.

Explaining rising dividends

There is another phenomenon that helps to illustrate the problems with existing measures of the rate of profit. Figure 4 graphs the ratio of net dividend payments to corporate fixed assets at current cost. It shows a substantial increase since around 1983. The results are not very different if we measure fixed assets at historical cost.

Figure 4: Dividend to fixed assets ratio



Net dividends (NIPA 1.14, line 14) / Corporate non-residential fixed assets at current cost (FA 4.1, line 17 – line 20).

If the rate of profit has been falling, then why has the ratio of dividend payments to fixed assets been *increasing*?

Consider the following possibility. Suppose the government decides to fund a corporate tax cut by increasing the deficit, and leaves government spending unchanged. Suppose corporate tax revenue falls by $\$C$ as a result, and government borrowing increases by the same amount. Assume banks (domestic or foreign) fund this deficit by purchasing $\$C$ of extra Treasury bonds. Now suppose, as a simplification, that corporations' investment decisions are unaffected by the combination of the tax cut and increase in government borrowing.⁴ This implies that the extra $\$C$ in after tax profit that they make as a result of the tax cut will be spent entirely on paying dividends. Also suppose that this increase in dividend payments makes no difference to total consumption, and so total bank deposits increase by $\$C$.⁵ In that case, banks will have an extra $\$C$ in funds available: i.e., just enough to cover the value of the Treasury bonds.

So under these simplified assumptions, a corporate tax cut funded by increased borrowing brings about an equivalent increase in dividend payments, which in turn 'creates' the loanable funds required to finance the increased deficit. Both the income and wealth of shareholders

⁴ The tax cut increases the expected rate of profit on new investments, while the increase in government borrowing puts upward pressure on the interest rate. It is plausible that these two effects would leave corporate investment unchanged. It is certainly a *possibility*, which, as discussed below, is all we need to establish for this example.

⁵ Again, the combination of the upward effect on the interest rate (which would tend to decrease total consumption) and the increase in total income (which would tend to increase it) makes this outcome plausible, though all we need to establish is that it is possible.

increases by the size of the corporate tax cut, the after-tax profit share of income increases, but shareholders' consumption, and everyone else's, remains unchanged. Most importantly, the after-tax profit rate increases (though before-tax it is constant).

I am not sure to what extent this scenario describes what happened in the US since the 1980s, or how we might test its realism. We know that deficits have been rising, the dividends share of after-tax corporate profit has been rising, and that after-tax measures of the rate of profit impart a more upward (or less downward) trajectory to the rate of profit than before-tax measures. So it is at least a plausible explanation.

The important point here is that this *could* be a real effect of a shift towards deficit financing. But it is not one that Marx's law is designed to explain. In the example above, there is no change in either the socially necessary labour time performed by productive workers, productive workers' consumption (or their wages), or the expenditure of surplus value by any sector. So there is no change in the production or distribution of value. Nor is there any change in the rate of growth. But this measure of the rate of profit nevertheless increases, along with dividends.

Perhaps it would be better to use a pre-tax measure of profit. In this example, the shift to deficit financing leaves pre-tax corporate profits unchanged, and the problem seems to be overcome. But suppose we vary the example and assume a $\$C$ increase in government spending funded by an increase in borrowing, with no tax cut. In this case, corporate profits before- and after-tax will both be unaffected by the increase in government spending. Yet government expenditure of surplus value has increased, without any increase in the total surplus value produced.

If we treat any direct measure of corporate profit as a measure of surplus value, whether before- or after-tax, we will create the same problem. We will create the implication that increases in government borrowing can create new value.

Surplus value and fetishism

Marx himself does not examine the mystifying effect of the transformation of surplus value into after-tax profit and government spending. But he does consider how the division of surplus value into profit and interest gives the impression that money capital can create new value:

In interest-bearing capital, the capital relationship reaches its most superficial and fetishized form. Here we have $M-M'$, money that produces more money, self-valorizing value, without the process that mediates the two extremes. In commercial capital, $M-C-M'$, at least the general form of the capitalist movement is present, even though this takes place only in the circulation sphere, so that profit appears as merely profit upon alienation; but for all that, it presents itself as the product of a social *relation*, not the product of a mere *thing*. (Marx 1981, 515)

Government borrowing creates another layer of mystification again, because it allows the state to spend surplus value without making a deduction from profits or wages (both before- and after-tax). If we do not account for this, and treat measures of profit from the national accounts as though they measure surplus value, we implicitly adopt the fetishistic assumption that government borrowing itself can create surplus value.

This also helps to illustrate a broader point: commodity fetishism is not necessarily a product of weird ideas about objects possessing creative powers (although it can lead to those ideas), but a product of failing to put monetary payments in their proper social context; a failure to correctly understand the mediations between the production of value and its forms of

appearance. Thus even those who have read *Capital* cover-to-cover, and even Marx himself, can be guilty of smuggling fetishistic assumptions into their analyses – indeed, it is probably impossible to completely avoid this.

So what is surplus value, and how might we try to define it non-fetishistically? In *Capital*, Marx generally operates with the assumption that the wages bill is equal to the value of the commodities that productive workers purchase and consume in order to reproduce their labour power. Under this assumption, surplus value can be looked at in two ways. On the income side, it is equal to the total revenue capitalists receive from selling their commodities, less their wages bill and an allowance for the depreciation of constant capital (Marx 1976, 320–321). On the expenditure side, it is the total price paid for all newly produced commodities, less productive workers' total expenditure, less the portion of spending on new constant capital that we account for as replacing depreciated constant capital (Marx 1978, 586–587).

Thus surplus value encompasses a great many expenditures, including: personal consumption of anyone who is not a productive worker, government spending on commodities (remembering not to double count spending by government wage earners), and all net investment, including investment in employing additional labour power.

Attempts have been made to estimate versions of surplus value in this broad sense, using simultaneous, dual system interpretations of Marx's theory (e.g. Shaikh and Tonak 1994). However, if we want to explain the rate of growth of corporate output, this measure of surplus value is too broad. It is not useful to consider surplus value spent by the state, by unproductive wage earners and by non-corporate business owners as 'potentially available' to invest in expanding corporate output, because these costs are not part of capitalists' personal consumption. Rather, for the capitalist class as a whole, they are costs like any other (except for non-corporate business investment, which is a productive expenditure of surplus value that does not expand corporate output). Assuming no change in the total quantity of value produced, it makes no difference whether a given dollar of value is spent by a productive worker, and therefore is not surplus value, or if it is spent by an unproductive wage earner or the state and therefore is surplus value. Either way, this value is neither available for corporate profits nor for investment in expanding corporate output. So including it in the numerator will neither help us to explain capitalists' behaviour nor the rate of accumulation.

Instead, we should focus on the portion of surplus value that is left over after these deductions. I also think this is roughly the part of surplus value that Marx was interested in when he formulated the LTFRP, and this is why, in *Capital* Volume 3 as edited by Engels, Marx's discussion of the law comes after he has explained how some surplus value is spent unproductively on costs such as costs of circulation.⁶ In any case, this is the portion of surplus value that I will try to measure in this paper. I will call it 'corporate surplus value' or more properly 'non-fictitious corporate profit'.⁷

However, the argument above demonstrates that we cannot treat this as equivalent to corporate profits before- or after-tax. So how might we measure it? Does this mean that the sum of corporate profits can differ from corporate surplus value? If so, where do the additional profits come from?

⁶ Obviously Marx did not make the corporate / non-corporate distinction, but he did exclude petty-bourgeois producers, which we can do approximately by focusing on just corporate businesses.

⁷ Because the US is not an isolated economy we cannot measure surplus value directly with US data alone, so instead we have to measure surplus value available to the corporate sector after the transformation of values into prices. This issue is discussed further in the section 'Additional Assumptions and Limitations'.

Fictitious profits

Let us go back to the example of the deficit-funded corporate tax cut. Note that the additional wealth shareholders' accumulate does not correspond to any increase in productive capital advanced. In that example, shareholders are paid additional dividends of \$C, which they accumulate in the form of deposits – i.e., in the form of credit money issued by the banks. For the banks, these deposits are liabilities, which are balanced by the assets they accumulate in the form of Treasury bonds – i.e., debt certificates issued by the government. These bonds and deposits are a form of what Marx (1981, 590) calls 'fictitious capital':

These securities..., if they are in government bonds, are capital only for the person who has bought them, to whom they represent his purchase price, the capital he has invested in them. They are not capital in themselves, but simple creditor's claims; if they are in mortgages, they are simple claims on future payments of ground-rent; and if they are stocks of some other kind, they are simple property titles which gives the holder a claim to future surplus-value. None of these things are genuine capital, they do not constitute any component of capital and are also in themselves not values.

Fictitious capital has a special capacity that is often not appreciated by Marxists, that really needs to be discussed at greater length than is possible here. The basic idea is: fictitious capital destroys the equality between income and the expenditure of value on which much Marxist analysis is implicitly premised. Because the state (and other entities) can borrow, or accumulate or disaccumulate 'savings', its expenditure can differ from its income. So the state can spend surplus value (i.e., purchase new use values for unproductive consumption or pay wages to unproductive government employees to do this) without reducing any other current incomes or profits.

Worse still, fictitious capital can itself create forms of profit. Rising share prices, for example, create profits for owners of share certificates. Because an expansion of the total market value of corporations' outstanding shares is (correctly) not usually treated as an expansion in anyone's liabilities, rising share prices can, by themselves, create profit without creating corresponding losses. In principle, share traders could produce this wealth without limit. If investors were prepared to buy shares at ever higher prices, then the current market value of their collective holdings would rise ever higher, and this would be a continual stream of income and wealth for them. It appears as though they have the power to create value through the dialectical rotations of their computer hard drives. (Though if large numbers decide to convert this wealth into cash, they will find their accumulated paper profits are quickly reversed by paper losses.)

Marx (1981, 597–598) recognised this phenomenon:

The independent movement of these ownership titles' values, not only those of government bonds, but also of shares, strengthens the illusion that they constitute real capital beside the capital or claim to which they may give title. They become commodities, their prices having a specific movement and being specifically set. Their market values receive a determination differing from their nominal values, without any change in the value of the actual capital (even if its valorization does change)...

In so far as the rise or fall in value of these securities is independent of the movement in the value of the real capital that they represent, the wealth of a nation is just as great afterwards as before.

Moreover, this is just one example of the more general problem that capital gains introduce for an income-based definition of surplus value. Capital gains through rising land prices, for example, create similar problems. Once we introduce borrowing, lending and financial markets

into the analysis, the assumption that the sum of profit is equal to the sum of surplus value becomes untenable in its simple form. In order to keep doing value theory, we need a distinction between 'non-fictitious' and 'fictitious' profits, just as we need a distinction between 'real' and 'fictitious' capital.⁸

Even national accountants recognise the need to set *some* boundary between 'fictitious' and 'non-fictitious' profits (without using this terminology). The US National Income and Product Accounts (NIPA), for example, exclude income from capital gains (both realised and unrealised) from GDP and their various measures of profit. When Marxists use these measures, we implicitly accept the need for a distinction between fictitious and non-fictitious profits; but we just adopt the one given to us by the national accounts by default. So Marxists who rely on the NIPA cannot justify their approach by arguing that they are measuring an average of the rates of profit that capitalists themselves use to make investment decisions.⁹

Measuring the cost of reproducing labour power

The other problem we have to resolve concerns wages and the value of wage earners' consumption. As mentioned, Marx assumes these are equivalent. But this is not true in reality. Wage earners too can save or dis-save, including when considered as a group. This means it cannot be true that surplus value can be equal to both total value less wages and depreciation *and* total value less wage earners' consumption and depreciation. We have to choose one or the other.

Marxists invariably choose the first (as far as I am aware) – i.e., they choose to define surplus value on the income side, using some measure of profit from the national accounts. But as we have seen, this creates problems when we introduce government borrowing.

It also creates other problems. Imagine an economy that consists only of capitalists and productive workers, where net output produced is \$Y, all of which is sold this year. Also suppose wages are \$W, and workers' purchase \$C of commodities produced this year, and save \$S of their wages (which we assume is a positive number). If we define surplus value as net output less wages, then surplus value is $\$Y - \W .

But it is also true by definition that the total expenditure of value on workers' consumption, capitalists' consumption and net investment is equal to net output sold. So it must also be true that the sum of capitalists' consumption and net investment – i.e., the total expenditure of surplus value – is $\$Y - \C , which is \$S larger than net output less wages. Therefore, according to this definition of surplus value, surplus value is \$S larger than itself, where \$S is greater than zero. We have a logical contradiction.

But all that has actually happened here is that, because workers did not spend \$S of their income, it was available for capitalists to invest or consume.¹⁰

Moreover, in this example, the maximum level of net investment is \$S greater than 'surplus value' as measured on the income side. Yet our theory of why the rate of profit is likely to have the same trend as the rate of accumulation, and hence the rate of growth, relies on the proposition that surplus value is the maximum level of investment.

⁸ I have not used the term 'real profits' to avoid confusion with inflation-adjusted profits.

⁹ I think it *is* useful to *also* look at averages of rates of return that investors and corporate managers themselves measure and respond to. But because of the possibility of fictitious profits, we cannot regard such measures as tests of Marx's law, nor should we expect them to explain trends in the rate of growth. My unfinished PhD thesis gives a theory that links movements in the 'deep' rate of profit to movements in rates of return on financial markets.

¹⁰ In practice, the credit system makes this possible.

These problems, and the problem introduced by government borrowing, mean that the only conclusion that is consistent with Marx's value theory is that net output less wages is not equivalent to surplus value. Once we introduce the credit system and fictitious capital, it is no longer coherent to define surplus value in terms of income. We have to recognise that total profit can diverge from total surplus value; i.e., we have to allow for the possibility of fictitious profit, and define non-fictitious profit in terms of expenditure of value. Rather than subtracting wage earners' income from output, we should subtract the value they spend on newly produced commodities.

A portion of wage earners' income then becomes, at least potentially, a component of surplus value. It might be objected that this means surplus value is no longer a measure of the value extracted from workers. But I think this is actually a *better* measure of exploitation. Imagine two countries in which net output is the same, and workers are paid the same wages, but in one country workers save more of their income in anticipation of their needs during retirement – e.g., because they do not expect that the state will provide a liveable old age pension, adequate medical care, etc. If surplus value is defined as net output less wages, then we have to say that the rate of exploitation in both countries is the same. But if, instead, we define it in the way I am proposing here, then we say, correctly, that the rate of exploitation is higher in the country where workers' need to save more of their income.

Measuring non-fictitious corporate profits

So we will measure surplus value on the expenditure side. As mentioned above, we are only interested in *corporate* surplus value: i.e., the surplus value left over after subtracting: expenditures by unproductive wage earners (including government employees) and unemployed people; spending on commodities other than labour power by the state (since the cost of government workers' labour power is incorporated in the previous category); investment by non-corporate businesses; and, personal consumption spending by non-corporate business owners. To calculate this, we will start with net output, and subtract these expenditures plus expenditure by productive workers. Fortunately, this means we do not actually need to distinguish productive workers from unproductive wage earners – we can just subtract wage earners' consumption as a whole.

But first, we need to define net output appropriately. For Marx (1951, 154), to count towards new value produced, goods and services must be produced for sale by the expenditure of labour power; i.e., they must be produced commodities. But national accounts make various imputations that extend their definition of value added beyond this boundary. For example, the US national accounts impute final output to the government, household and non-profit sectors based on the cost of their inputs. But the overwhelming majority of this 'output' is not produced for sale, and a large proportion is not 'output' according to any other reasonable understanding of the term either. So, for example, all military employees are counted as producing final 'output' equal to their wages, and the depreciation of all military equipment and structures is also counted in the same way (US Bureau of Economic Analysis 2011, 9–4).

However, some output of the government and non-profit sectors is produced for sale. Government run utilities, health and education facilities, for example, charge fees to many of their customers, patients and students, and this both reduces the cost to the state of providing these services, and should be counted as new value produced. To account for this, I have subtracted the value added that is imputed to the government sector from GDP, but added back in government 'sales to other sectors'.

Next, consider the value added that national accounts impute to the household and non-profit sector. A large proportion of this value added is imputed to the housing stock.

Effectively, national accounts treat residential fixed assets as though their depreciation transfers value to output; and, on top of that, they generate extra value by ‘producing’ ‘housing services’ (US Bureau of Economic Analysis 2011, 2–16, 2–17). That is, consistent with neoclassical theory, they treat houses as ‘fixed capital’ that produce value for their owners. For this reason, they count both actual rent paid by tenants to landlords (for the house only, and not the land) and the ‘rent’ that owner occupiers ‘pay themselves’ as output. But from a Marxist perspective, none of this is a payment for new value or even a transfer of existing value to output. A tenant pays their landlord for the privilege of using a commodity that has already been produced; the value of their house was counted towards output when it was first constructed (and as further investments in it are made). Since houses are overwhelmingly not used as inputs to production, but to live in, they do not transfer the value of their depreciation to output, and they certainly do not produce extra value on top. So we want to subtract all of this ‘value added’ from GDP.

Now consider employees in the household sector. These are people directly employed by others in a private capacity: that is, to produce use values for the household to consume directly, and not to produce output for sale. Domestic servants, for example, are ‘household employees’. Marx (1951, 153–154) deals with this case explicitly, and argues that they are not productive workers, since they are not employed to produce commodities. So we will subtract all the value added imputed to the household sector from GDP.

Output of non-profit institutions is a mixture. Some output from this sector is genuine value added: for example, the services provided for a fee by schools and hospitals. But the output for which they do not charge a fee is not genuine value added. From 1958 onwards the national accounts include an estimate of ‘receipts from sales of goods and services by nonprofit institutions’, so we can include this as genuine value added, and subtract the rest of the value added attributed to this sector.¹¹

Finally there is the business sector. Consider non-financial business first. Not all the labour performed by business employees is productive labour: e.g. supervisory labour and work involved in selling already existing commodities. But the national accounts treat this as an ‘intermediate input’ rather than an addition to final output. When a commodity is sold by the retail sector, for example, its contribution to business gross value added is just the price paid for the commodity, and the ‘value added’ by retail employees is treated as part of the cost of producing and selling the commodity. So it would be wrong to subtract ‘value added’ by the retail sector from final output, since by doing so we would be subtracting a portion of the sale price of the final commodity.

Similarly, for Marx, the entire financial sector is unproductive. But most of the ‘value added’ that national accounts attribute to the financial sector is also treated as an intermediate input, and not as final output. For example, when a bank lends money to a business, the spread between the rate of interest charged to the business and the rate of interest received by the deposit holder is counted as an intermediate input into producing the output of that business. The implication of this treatment is that the bank is ‘adding value’ by acting as an intermediary between borrower and lender. But since this value added is treated as an intermediate input, it does not add to final output, so we should not subtract it. However, the accounts *do* treat the interest rate spread on money lent to households and foreign entities as final output, so we do need to subtract this from output.¹²

¹¹ Before 1958 I have assumed that this revenue as a share of output is the same as for 1958.

¹² I have done this by subtracting from output households’ consumption of financial and insurance services and net exports of ‘other private services’. ‘Other private services’ includes “financial services, insurance services, and business, professional and technical services” which would overwhelmingly be

We will call output defined in this way ‘gross revised output’, or GRO:

$GRO \equiv GDP$ (NIPA 1.1.5, line 1) – government gross value added (NIPA 1.3.5, line 8) + government sales to other sectors (NIPA 3.10.5, line 11) – household and non-profit gross value added (NIPA 1.3.5, line 5) + receipts from sales of goods and services by non-profit institutions (NIPA 2.3.5, line 24) – personal consumption of financial and insurance services (NIPA 2.3.5, line 20) – exports of ‘other private services’ (NIPA 4.2.5, line 22) + imports of ‘other private services’ (NIPA 4.2.5, line 46) – net corporate profit from housing (NIPA 7.4.5, line 22) – net proprietors’ income from housing (NIPA 7.4.5, line 20) – depreciation of residential fixed assets owned by businesses (NIPA 7.5, line 13 + line 14).¹³

If we subtract depreciation, then we get net revised output, or NRO. Since we have excluded most of the gross ‘output’ produced outside the business sector, we need to avoid subtracting depreciation on non-business assets twice. So we only subtract an estimate of the depreciation component of the revenue paid to non-business sectors (i.e., only on the value of the fixed assets used to produce new commodities), along with depreciation on non-residential fixed assets owned by businesses:

$NRO \equiv GRO$ – depreciation of non-residential business fixed assets (NIPA 7.5, line 3 - NIPA 7.5, line 13 – NIPA 7.5, line 14) – [government sales to other sectors (NIPA 3.10.5, line 11) / government gross value added (NIPA 1.3.5, line 8)] * depreciation of non-residential government fixed assets (FA 1.3, line 10 - line 19) – [receipts from sales of goods and services by non-profit institutions (NIPA 2.3.5, line 24) / non-profit gross value added (NIPA 1.3.5, line 7)] * depreciation of non-profit non-residential fixed assets (NIPA 7.5, line 20).

I am not sure if this measure has much interest for its own sake, so have not reported the results for it.

To get to corporate surplus value, next we subtract an estimate of consumption funded out of wage income, government social benefits and non-corporate business income. But there is a significant problem here. The national accounts compare personal income with personal consumption expenditure for the population as a whole, so it is not possible to distinguish the average propensity to spend wages, social benefits and non-corporate business income from the average propensity to spend other personal income. Instead, we have to calculate a *general* average propensity to consume all income, and just apply this; even though this is likely to be lower than the average propensity to spend wages, social benefits and non-corporate business income (since we would expect recipients of this income to be poorer on average than recipients of other income, and therefore to spend a higher proportion of their income).¹⁴ This is a significant limitation of this approach.

non-productive. Before 1967 there is no data for net exports of ‘other private services’, but by 1967 it becomes negligibly small, so we can safely assume it is zero from 1948-67.

¹³ This is intended to approximate the total price of all commodities produced. So unlike standard measures of GDP, it does not purport to be a measure of the ‘total welfare’ that people obtain from consuming goods and services. For example, if education starts to be provided for a fee where previously it was free, then GRO will increase, even if fewer people are able to access education as a result, and even if it reduces the productivity of the living labour on which capital depends.

¹⁴ To do this, I have also adjusted the personal consumption expenditure figures in the national accounts to remove rent and spending on financial and insurance services, since these items are in fact *transfers* of value, not expenditure of value. I have also revised aggregate personal income by subtracting the housing rent that the national accounts count as imputed income for owner occupiers, since this is not actually income. Non-corporate investment in housing is accounted for separately, as part of non-corporate investment in fixed assets.

To make this estimate we also assume that the value of wage earners' consumption is equal to the total cost of buying the commodities consumed. This makes it a single system interpretation of Marx's value theory.

To get to corporate non-fictitious profit, we also need to subtract government and non-profit institutions' spending on commodities other than labour power (since we have already subtracted consumption by all wage earners), and net investment and personal consumption by non-corporate private owners of houses and businesses. The full definition of corporate non-fictitious profits is provided in the appendix.

Additional assumptions and limitations

We also have to assume that the total price of (revised) net output in the US is equal to the total new value *produced* by workers. But ideally this should only be axiomatically true at the level of the world economy as a whole, not for the US economy considered in isolation. This means we are not taking into account the net surplus value that is either appropriated from or extracted by the rest of the world. This assumption is very common for Marxists working on the rate of profit because it is difficult to relax (and we do not even have an adequate theory of how we might relax it). In any case, if we want to test whether the rate of profit can explain growth in output, then we want to *include* the value that is appropriated or lost due to any difference between the total price and total value of output. So, in a way, this is nevertheless the correct approach.

Since this approach is based on a single system interpretation, there is no need to calculate surplus value in hours.

There is also a more general problem with making detailed adjustments to the national accounts such as these. If they are well-justified, the results that detailed adjustments produce can be considered more accurate results, and can help us to understand reality better – a goal I think these results achieve. But detailed adjustments can also be used, consciously or unconsciously, to 'fiddle' results to help achieve a pre-determined outcome, and this is not always easy for the reader to identify.

So I have also calculated a simpler measure of the rate of profit that is still responsive to increases in government borrowing, but subtracts wages rather than an estimate of employees' consumption. It starts with (ordinary) net domestic product less compensation of employees, which is a very basic measure of 'broad' surplus value. Then it subtracts government spending on consumption and investment, and government social benefits to persons net of contributions to social security, to arrive at a rough estimate of 'non-fictitious' profits.¹⁵ The main differences between this measure and the one above are that workers' are assumed to consume all their income, and there is no attempt to remove the various imputations that the national accounts use to calculate net output.

Results

We will start with the results from this simpler and less accurate measure of surplus value, divided by corporate fixed assets at current cost. Figure 5 immediately below presents the raw

¹⁵ So the 'simpler' measure of rate of profit is defined as [net domestic product (NIPA 1.9.5, line 1) – compensation of non-government employees (NIPA 1.10, line 2 – NIPA 6.2 A to D, compensation of govt. employees) – government spending on consumption and investment (NIPA 3.9.5, line 1) – net government social benefits to persons (NIPA 2.1, line 17 – line 25)] / corporate non-residential fixed assets at current cost (FA 4.1, line 17 – line 20).

results compared with the real rate of growth of corporate net value added; Figure 6 presents the same results after applying an HP filter.

Figure 5: 'Simpler' measure of the ROP vs growth rate of real corporate NVA

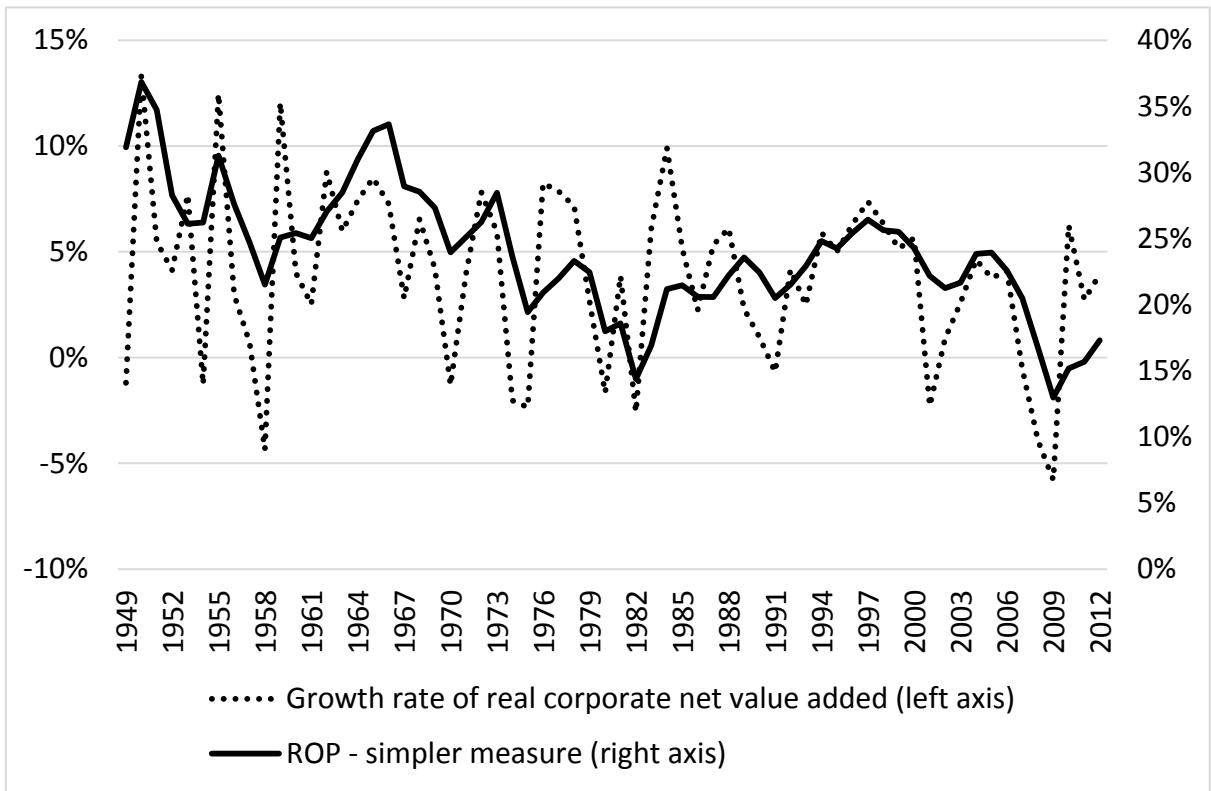
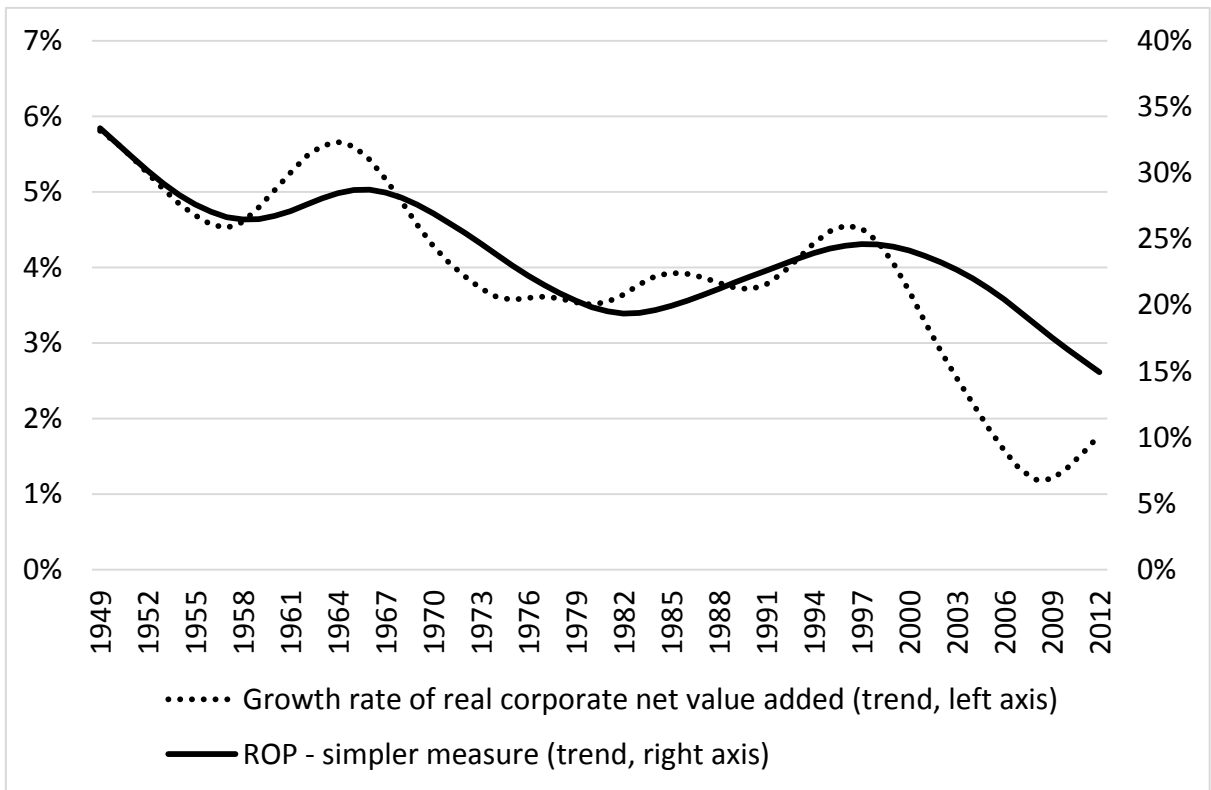


Figure 6: Trends in the 'simpler' ROP measure and the growth rate of corporate NVA

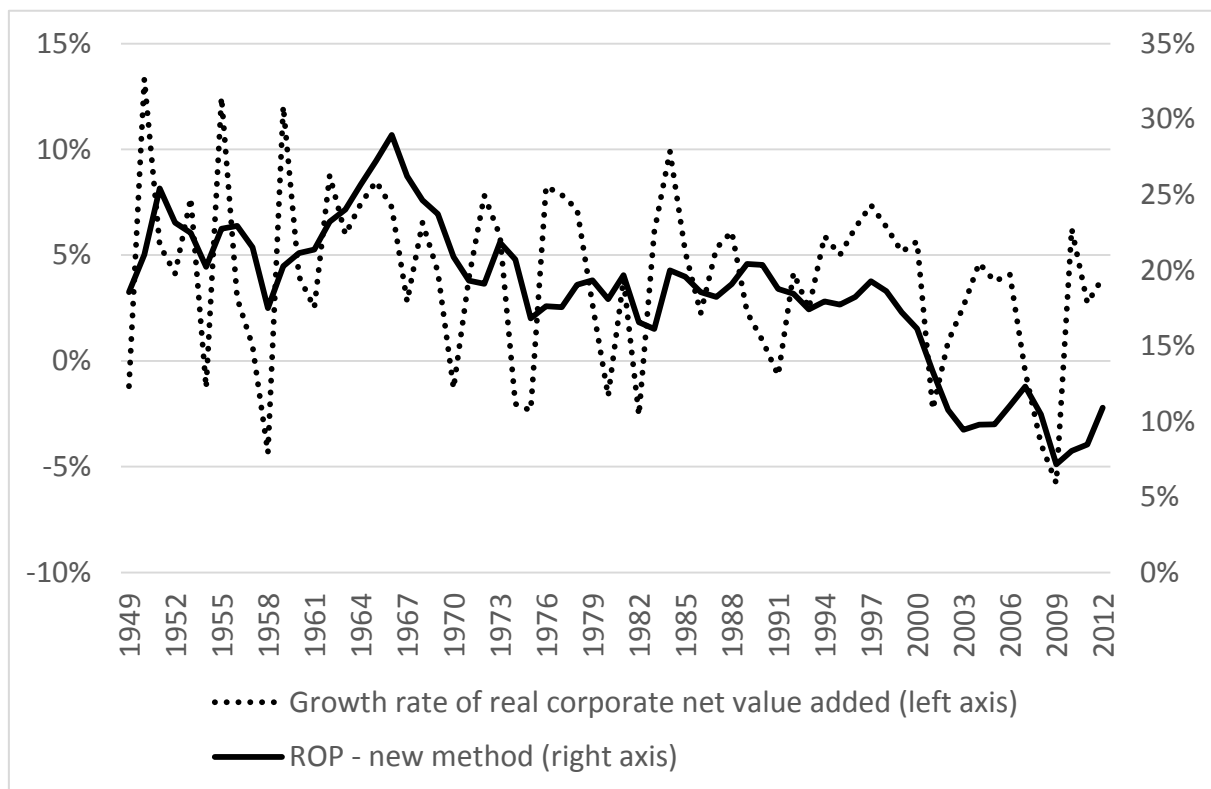


The trends in the two graphs fit fairly well together; the main difference is that this measure of the rate of profit does not fall as far as the rate of growth during the 2000s. It is a considerably closer fit than standard measures of the rate of profit. In particular, unlike standard measures, it registers a *downward* trend in the lead up to the Great Recession, rather than rising or merely remaining persistently low.

Most importantly, it shows that standard measures' failure to account for the drain on surplus value imposed by government borrowing makes a significant difference to the trend in the rate of profit. Adjusting for this alone is enough to obtain a measure of the rate of profit that declines in the lead up to 2007-08.

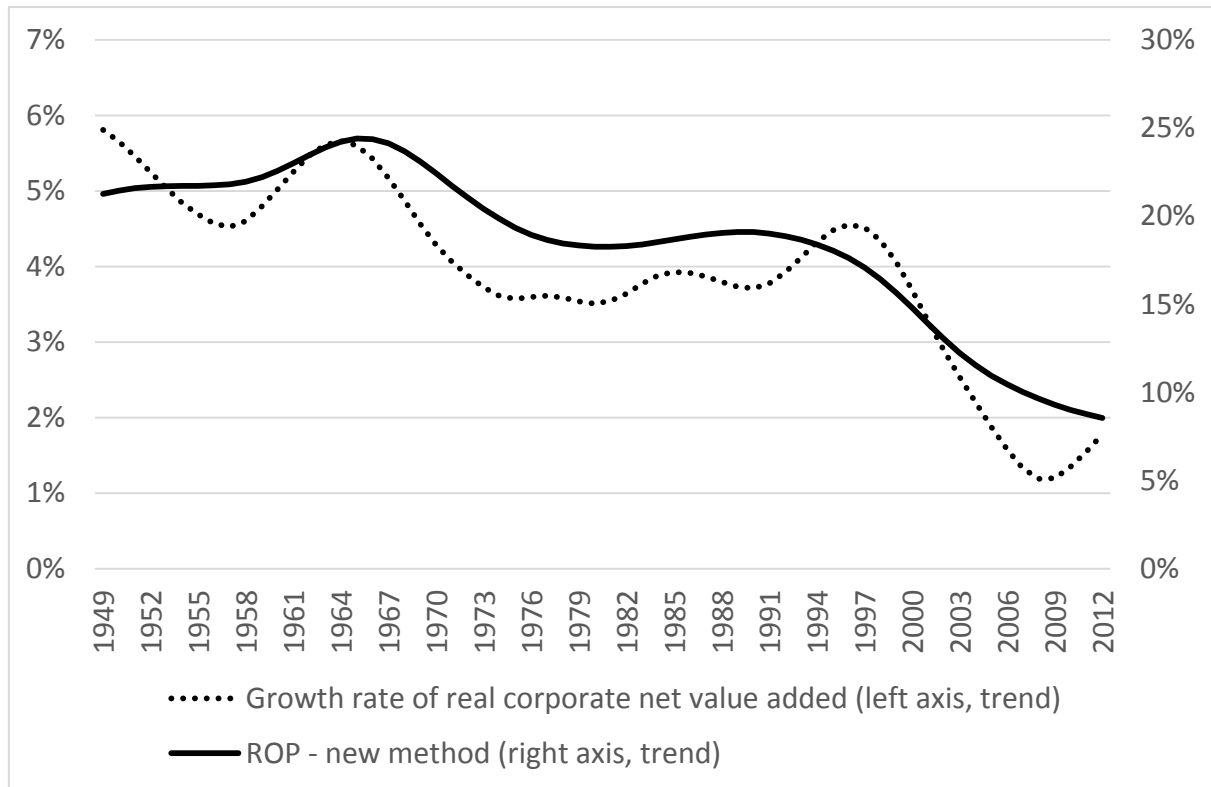
The next two graphs present the more important results obtained using the more detailed method for calculating surplus value. Again, the first gives the raw results versus the growth rate of corporate net value added; the second gives the same results after applying the HP filter. The denominator here is corporate fixed assets at current cost.¹⁶

Figure 7: ROP using non-fictitious corporate profit vs growth rate of corporate NVA



¹⁶ There is also a strong case for including inventories in the denominator if we want to test Marx's law (though the case for doing this is weaker if we want to explain growth in real output). I have calculated these results and they give a similar trend, but they have not included the results for reasons of space.

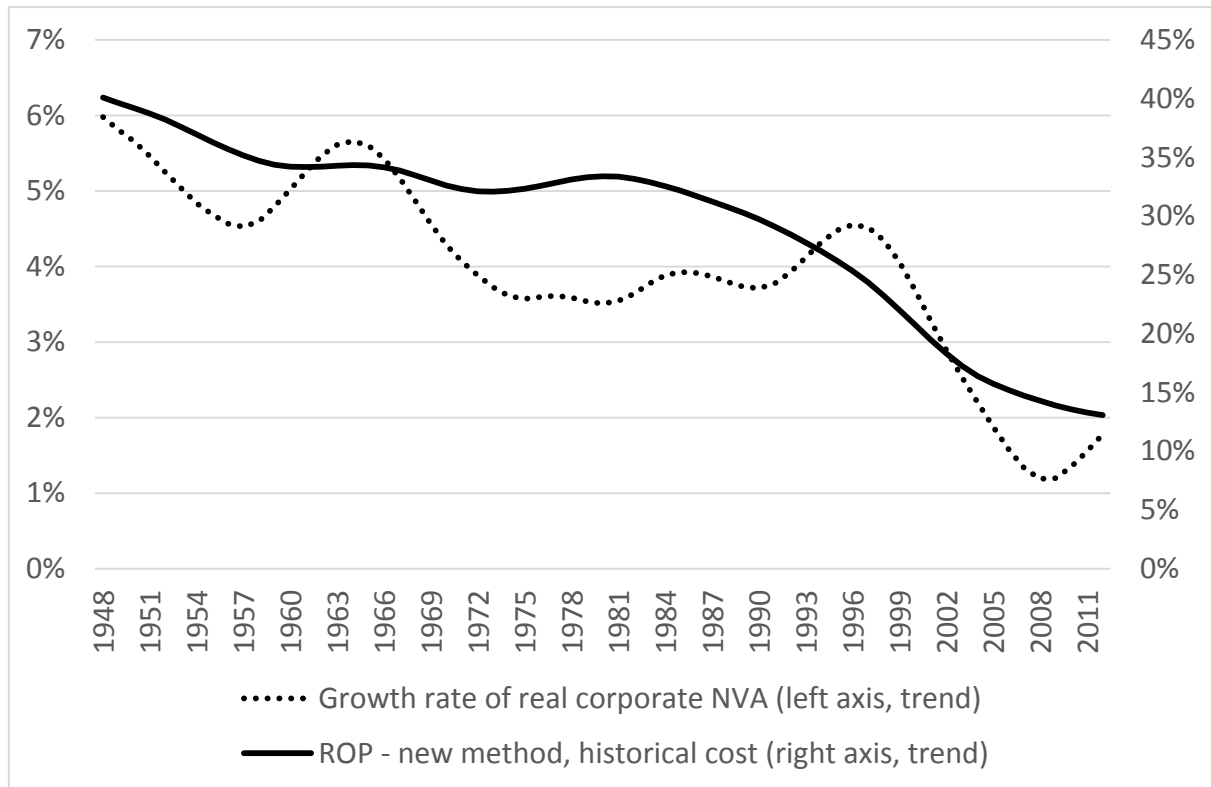
Figure 8: Trends in the non-fictitious ROP vs growth rate of corporate NVA



The results are striking. The trends in both series are similar: there is an upward trend until the mid-1960s, a downward trend until the early 1980s, a modest recovery and then a sharp decline until the Great Recession. The main difference in the trends is that the corporate growth rate keeps rising until 1997 (the year of the Asian financial crisis), while the rate of profit starts falling from 1989 onwards. The growth rate is also more volatile and cyclical. So, year by year, the degree of correlation between the two series is not high, and growth in any one year cannot simply be ‘read off’ the rate of profit. But after applying the HP filter the R squared between the two series is 0.85, which confirms that they have similar trends over the medium- to long-term.

A historical cost measure of capital advanced gives quite similar results, as we can see from the filtered versions of the series in Figure 9 below.

Figure 9: Trends in the non-fictitious ROP at historical cost vs growth rate of corporate NVA



Thus, using this new measure of the numerator, the choice of measure of the denominator no longer appears to be crucial. The results do not seem to leave much room for alternative interpretations.

However, this approach does raise some important questions that have not been answered in this paper. What exactly is the relationship between real capital advanced and fictitious capital advanced? What is the relationship between ‘deep’ measures of the rate of profit such as these and the rates of return that companies and investors respond to? Is there a connection between the generation of ‘too much’ fictitious profit and financial market crashes? I think these are questions about which Marx’s value theory can tell us a great deal, but only if we start by recognising that we need a quantitative distinction between fictitious and non-fictitious profits, and that we need to get that distinction right.

These results show that if we make this distinction, trends in the rate of profit and the rate of growth of corporate output no longer diverge significantly. They also unambiguously show that the US rate of profit declined over the post-war period, and, in particular, in the lead up to the Great Recession. This gives Marx’s law of the tendential fall in the rate of profit strong explanatory power, and considerably stronger explanatory power than is currently thought.

Appendix: Definition of corporate surplus value

Corporate surplus value \equiv Net revised output – [Compensation of employees, paid (NIPA 1.10 line 2) + Proprietors' net income (NIPA 2.1 line 9)] * Average propensity to spend non-imputed income on newly produced commodities excluding fixed assets (see definition below) – [Government social benefits to persons (NIPA 2.1 line 17) – Contributions for government social insurance (NIPA 2.1 line 25)] – Intermediate goods and services purchased for government consumption expenditures (NIPA 3.10.5 line 6) – [Gross investment in non-corporate private fixed assets (FA 6.7, line 5) – Current cost depreciation of non-corporate private fixed assets (FA 6.4, line 5)]

Average propensity to spend non-imputed income on newly produced commodities excluding fixed assets \equiv

[Personal consumption expenditures (NIPA 2.1, line 29) – housing output (i.e., imputed and actual rent, NIPA 7.4.5 line 1) – purchases of financial services and insurance out of personal income (NIPA 2.3.5 line 20)] / [Personal income (NIPA 2.1, line 7) – Rental income of households and nonprofit institutions with capital consumption adjustment (NIPA 7.9, line 9)]

Reference List

- Backus, David K., Patrick J. Kehoe, and Finn E. Kydland. 1992. "International Real Business Cycles." *Journal of Political Economy* 100 (4) (August 1): 745–775.
- Basu, Deepankar, and Ramaa Vasudevan. 2012. "Technology, Distribution and the Rate of Profit in the US Economy: Understanding the Current Crisis." *Cambridge Journal of Economics* (October 4). doi:10.1093/cje/bes035. <http://cje.oxfordjournals.org/content/early/2012/09/25/cje.bes035.short?rss=1>.
- Carchedi, Guglielmo, and Michael Roberts. 2013. "A Critique of Michael Heinrich, Crisis Theory, the Law of the Tendency of the Rate of Profit to Fall and Marx's Studies in the 1870s (Draft Version)." <http://thenextrecession.files.wordpress.com/2013/07/heinrich-paper-22-june-2013-new-4.docx>.
- Duménil, Gérard, and Dominique Lévy. 2011. *The Crisis of Neoliberalism*. Cambridge, Mass.: Harvard University Press. <http://site.ebrary.com/id/10456085>.
- Heinrich, Michael. 2013. "Crisis Theory, the Law of the Tendency of the Profit Rate to Fall, and Marx's Studies in the 1870s." *Monthly Review* 64 (11) (April). <http://monthlyreview.org/2013/04/01/crisis-theory-the-law-of-the-tendency-of-the-profit-rate-to-fall-and-marxs-studies-in-the-1870s>.
- Hodrick, Robert J., and Edward C. Prescott. 1997. "Postwar U.S. Business Cycles: An Empirical Investigation." *Journal of Money, Credit and Banking* 29 (1) (February 1): 1–16. doi:10.2307/2953682.
- Kliman, Andrew. 2007. *Reclaiming Marx's Capital: A Refutation of the Myth of Inconsistency*. Lanham, MD: Lexington Books.
- . 2010. *The Persistent Fall in Profitability Underlying the Current Crisis: New Temporalist Evidence*. New York: Marxist-Humanist Initiative.
- . 2011. *The Failure of Capitalist Production: Underlying Causes of the Great Recession*. Pluto Press.
- Kliman, Andrew, Alan Freeman, Nick Potts, Alexey Gusev, and Brendan Cooney. 2013. "The Unmaking of Marx's Capital: Heinrich's Attempt to Eliminate Marx's Crisis Theory". MPRA Paper. July 22. <http://mpa.ub.uni-muenchen.de/48535/>.
- Marx, Karl. 1951. *Theories of Surplus Value*. Edited by Karl Kautsky. Translated by G. A. Bonner and Emile Burns. London: Lawrence & Wishart.
- . 1976. *Capital Volume 1*. Translated by Ben Fowkes. London [etc]: Penguin.
- . 1978. *Capital Volume 2*. Translated by David Fernbach. London [etc.]: Penguin.
- . 1981. *Capital Volume 3*. Translated by David Fernbach. London [etc.]: Penguin.
- Okishio, Nobuo. 1961. "Technical Changes and the Rate of Profit." *Kobe University Economic Review* 7: 85–99.

- Shaikh, Anwar, and Ertuğrul Ahmet Tonak. 1994. *Measuring the Wealth of Nations: The Political Economy of National Accounts*. Cambridge: Cambridge University Press.
- US Bureau of Economic Analysis. 2003. "Fixed Assets and Consumer Durable Goods in the United States, 1925-97". Government Printing Office.
- . 2011. *Concepts and Methods of the U.S. National Income and Product Accounts*.
<http://www.bea.gov/national/pdf/chapters1-4.pdf>.
- . 2013a. "US National Income and Product Accounts."
http://www.bea.gov/iTable/index_nipa.cfm.
- . 2013b. "Fixed Assets and Consumer Durable Goods." http://www.bea.gov/iTable/index_FA.cfm.