

## Revisiting a world rate of profit

By Michael Roberts

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### A world rate of profit before

Back in 2012, I presented a paper to the Association of Heterodox Economists entitled, A world rate of profit<sup>1</sup>. Marx's model of capitalism and its laws of motion are based on 'an economy', in other words, a world economy.

Of course, there are still many barriers to the establishment of a world economy and a world rate of profit from labour, trade and capital restrictions designed to preserve and protect national and regional markets from the flow of global capital.

But in 2014, capitalism is much closer to being a global economy than it was in 1914. So I tentatively suggested in that paper, that maybe we could start to talk about a world rate of profit and start to use any measure as an indicator of the underlying health and activity of capitalism globally.

In that paper I set out to try and measure a world rate of profit. I was not the first to do this. Minqi Li *et al* did some ground breaking work in their paper<sup>2</sup>

They developed a world rate of profit for a long period going back to 1870. For the 19<sup>th</sup> century, the study integrates just the UK, US and Japanese rates of profit. For the period after 1963, the authors bring in Germany, France and Italy, to make the G6. Among other things, Minqi Li *et al* found that their world rate of profit tended to fall between the late 19th century and the early 20th century and again tended to fall between the mid-20th century and the late 20th century. And they confirmed a rise from the mid-1980s to a peak in 1997.

In my own study, I developed a world rate of profit that includes all the G7 economies plus the four economies of the BRIC acronym. So this includes 11 top economies which constitute a significant major share of global GDP. I use the Extended World Penn Tables that David Zachariah used in his individual country study<sup>3</sup>

I weighted the national rates for the size of GDP, although the crude mean average rate does not seem to diverge significantly from the weighted average. A proper measure of the world rate of profit would have to add up all the constant and variable capital in the world and estimated the total surplus value appropriated by global capital. This is really an impossible task. So weighted national profit rates are the only feasible way of getting a figure.

I found that there was a fall in the world rate of profit from the starting point of the data in 1963 and the world rate has never recovered to the 1963 level in the last 50 years (Figure 1). The world rate of

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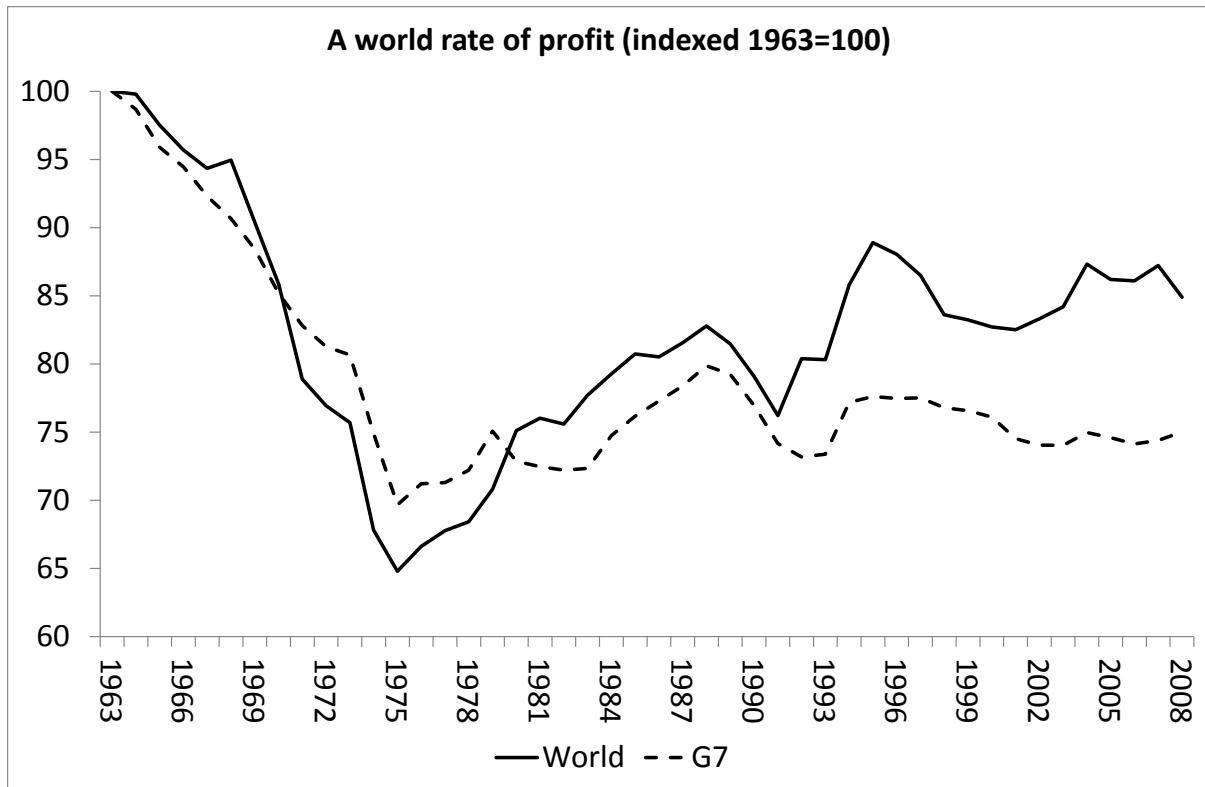
<sup>1</sup> Michael Roberts, A world rate of profit, paper presented to AHE/IPPE/WEA Conference, Paris July 2012. <http://gesd.free.fr/mrwrate.pdf>

<sup>2</sup> Minqi Li, Feng Xiao, Andong Zhu, Long waves, institutional changes and historical trends: a study of the long-term movement of the profit rate in the capitalist world economy, Journal of World System Research, Number 1, 2007) <http://gesd.free.fr/lietal.pdf>

<sup>3</sup> Dave Zachariah, Determinants of the average profit rate and the trajectory of capitalist economies, 4 February 2010. <http://gesd.free.fr/zacha10.pdf>

profit reached a low in 1975 and then rose to a peak in the mid-1990s. Since then, the world rate of profit has been static or slightly falling and has not returned to its peak of the 1990s. And there was a divergence between the G7 rate of profit and the world rate of profit after the early 1990s. This indicates that non-G7 economies played an increasing role in sustaining the world rate of profit. The G7 capitalist economies have been suffering a profitability crisis since the late 1980s and certainly since the mid-1990s.

Figure 1



#### New estimates: Maito and Piketty

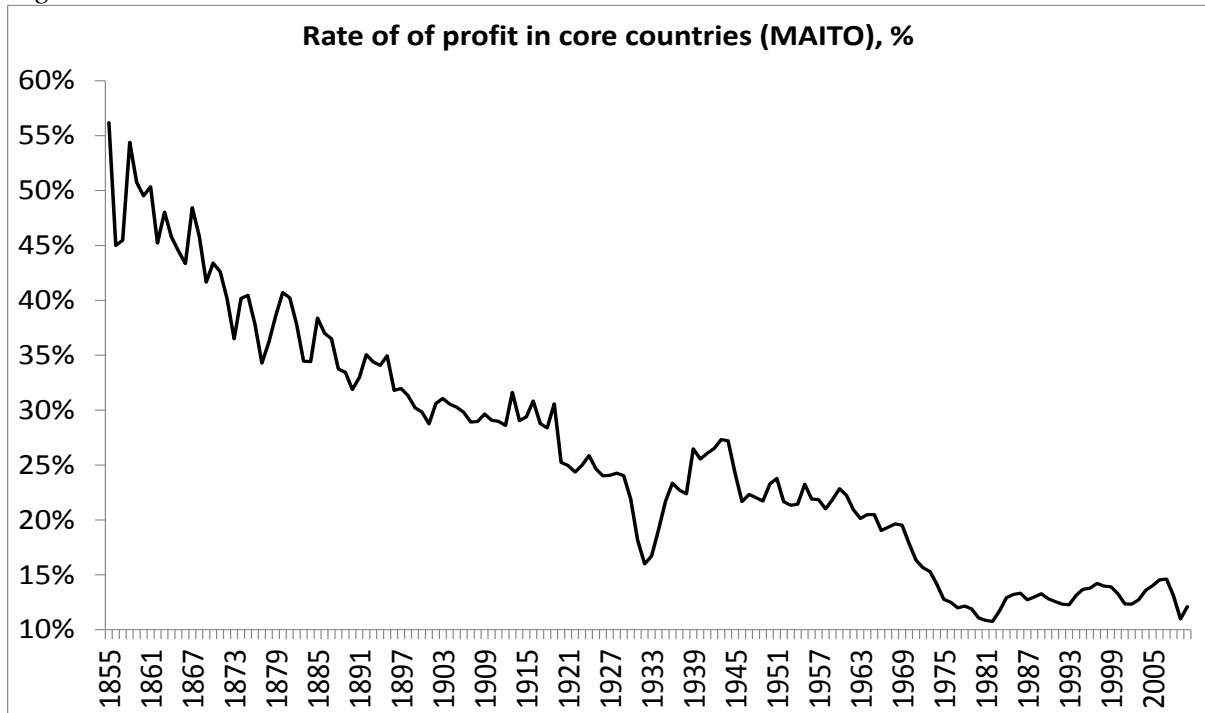
Now I have gone over all this again because there has been a brand new estimate of the world rate of profit in a new paper by Esteban Maito of Argentina. His paper presents estimates of the rate of profit on 14 countries in the long run going back to 1870<sup>4</sup>. And Maito uses national historical data for each country not the Extended Penn Tables that I used.

His result shows a clear downward trend in the world rate of profit, although there are periods of partial recovery in both core and peripheral countries (Figure 2). So the behaviour of the profit rate confirms the predictions made by Marx about the historical trend of the mode of production. There is a secular tendency for the rate of profit to fall under capitalism and Marx's law operates.

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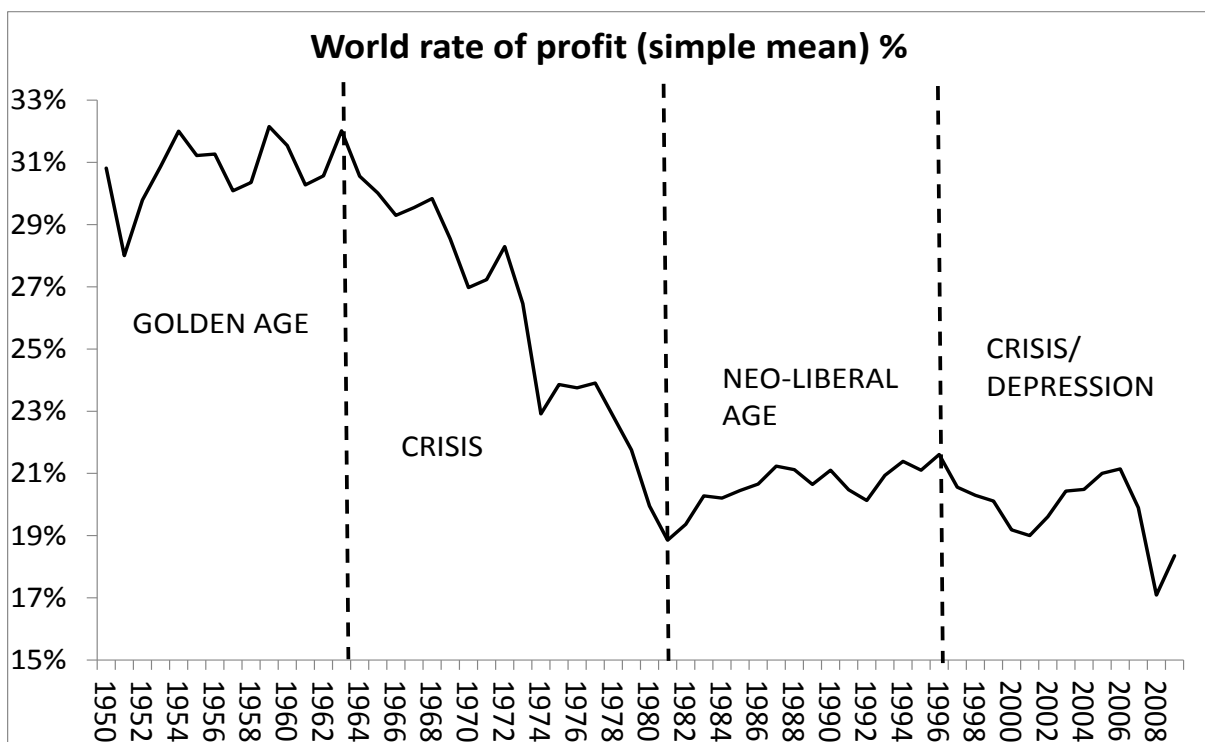
<sup>4</sup> Esteban Maito, The historical transience of capital: the downward trend in the rate of profit since the 19<sup>th</sup> century, University of Buenos Aires, Argentina, <http://gesd.free.fr/maito14.pdf>

Figure 2



Maito also finds, as Minqi Li and I do, that there was a stabilisation and even a rise in the world rate of profit from the early or mid-1980s up to the end of the 1990s, the so-called neoliberal period of the destruction of trade unions, a reduction in the welfare state and corporate taxes, privatisation, globalisation, hi-tech innovation and the fall of the Soviet Union. Again this seems to have peaked about 1997 (Figure 3).

Figure 3



This is where Thomas Piketty comes into the story. In his book, *Capital in the 21st century*, now acclaimed by all the great and good in mainstream economics, and by many on the heterodox left, Piketty alludes to his book title as a follow-on from Marx's *Capital*. But he takes time out to insist that Marx's law of profitability has proved to be fallacious.<sup>5</sup>

According to Piketty, "the rate of return on capital is a central concept in many economic theories. In particular, Marxist analysis emphasises the falling rate of profit – a historical prediction that has turned out to be quite wrong". I won't go into Piketty's reasons for claiming why Marx was wrong here (I am saving that for my upcoming review of Piketty's book in *Historical Materialism*). But the evidence from Maito, Minqi Li and myself makes a nonsense of Piketty's conclusion about Marx's law.

Piketty reckons that the net rate of return on capital (Piketty's  $r$ ) has been pretty static over the last 200 years at about 4-5%. This is crucial to his explanation of capitalist downfall as due to a rising share of profit going to capital and causing such extreme inequality that it threatens social instability. In contrast, Piketty sees no any crisis caused by falling profitability in the capitalist mode of production. Piketty's calculation that the net rate of return on capital has been steady is dubious even on his own definition of capital. But the real problem is that he defines capital as the same as wealth and thus includes residential property even though houses are not means of production and do not 'earn' an income (unless they are owned by real estate companies and rented out). By including residential property in his calculations and concocting the 'income' from it as 'rental equivalents', Piketty ends up with completely distorted results for his  $r$ .

Moreover, here is some irony. Maito uses Piketty's historical data for Germany to get a rate of profit for that economy. But Maito leaves out residential property and correctly categorises capital as the value of the means of production owned and accumulated in the capitalist sector. The result is not some steady  $r$ , but a rate of profit *a la* Marx. And this shows a long-term decline, but with a rise from the 1980s to 2007. Actually, Piketty's  $r$  also falls from 1950 and then stabilises from the 1980s too. This is because by 1950, landed property (also used in Piketty's measure of 'capital') has disappeared in value and Germans generally have a much lower ownership of residential property and capitalist means of production.<sup>6</sup>

So Marx's law of the tendency of the rate of profit to fall is again confirmed by this latest evidence of a world rate of profit. In my view, it remains the most important law of motion of capitalism, not Piketty's  $r$ .

#### Measuring the rate of profit from new sources

In this paper, I return to my estimates of a world rate of profit and revise them. Also, I include two new sources for estimates and compare all these with previous estimates, particularly those of Maito. In my last estimate I used the Extended Penn World Tables<sup>7</sup>. But these data only go back to 1963 and

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<sup>5</sup> M Roberts, *Piketty and the search for  $r$* , paper presented to ASSA 2015 in Boston, January 2015 and upcoming in *Historical Materialism*, see <https://thenextrecession.wordpress.com/2015/01/06/assa-part-one-the-rise-in-inequality-and-the-fall-in-piketty/>

<sup>6</sup> E Maito, *Piketty against Piketty. The tendency of the rate of profit to fall in United Kingdom and Germany since XIX century confirmed by Piketty's data* <http://gesd.free.fr/pikmaito.pdf>

<sup>7</sup> <http://homepage.newschool.edu/~foleyd/epwt/>

have not yet been updated beyond 2008. So I have turned to the Penn World Table (latest 8.0) to extract the necessary data<sup>8</sup>. I have also compared my results with the Extended Penn Table work as before and have also looked at the Eurostat AMECO database, which also provides data back to 1963.<sup>9</sup>

There are the usual issues with the categories for the formula for the rate of profit and also in gaps and distortions in the measurement of these categories. In the Appendix, I outline in detail, the sources, their use and the decisions made on measurements for each estimate. The workings are also available in excel files cited in the Appendix.

The main issues here are as follows:

- 1) what is the definition of the rate of profit to be used: is it  $s/c+v$  or variations on this? Most scholars argue that as variable capital is really a flow and not stock and gets turned over more than once in a year,  $v$  should not be included in any calculation. So the rate of profit will be  $s/c$ . I do not agree and present elsewhere as case for including variable capital in the formula a la Marx.<sup>10</sup>
- 2)  $c$  should include circulating capital (inventories etc) as well as fixed assets. But this is not always practical and usually does not make a huge difference to results over multi-year periods.
- 3) The bottom line of the rate of profit formula should be restricted to the capitalist sector and not include public sector or residential housing capital. Unfortunately, most of the data in these estimates do just that. So a boom or slump in housing can distort the results. Public sector investment in an arms race or an infrastructure boom could do also.<sup>11</sup>
- 4) Fixed assets should be measured in historic costs and net income or profits depreciated by historic costs too, if Marx's law of value is to be applied correctly, in my view, although as we know many scholars dispute this. Again, the measures here do not meet that criterion. However, it can be argued that the inflationary and deflationary distortions that would arise from using current cost valuation are reduced significantly over multi-year periods.<sup>12</sup>
- 5) The measures of a world rate of profit here are an average of national rates. This is clearly not a Marxian rate of profit, which would be a measure of total surplus value against total capital advanced globally, assuming the free flow of value across borders. However, weighting the national rates according to the GDP share in the universe used does help to bring the measure closer to a Marxian one.
- 6) Then there is the universe used. Maito uses 14 countries and these are not necessarily the largest or most important in reaching a world rate but they do constitute 62% of world GDP. In my series, I have taken data for the G20 countries (actually 19 as Europe as a block in excluded). This is the most comprehensive possible and offers the widest picture of global capitalism. I have also compared my results with the exact universe of 14 countries used by Maito.

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<sup>8</sup> <http://www.rug.nl/research/ggdc/data/pwt/pwt-8.0>

<sup>9</sup> [http://ec.europa.eu/economy\\_finance/ameco/user/serie/SelectSerie.cfm](http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm)

<sup>10</sup> G.Carchedi and M.Roberts, The rate of profit and circulating capital, unpublished

<sup>11</sup> M Roberts, Measuring the rate of profit, profit cycles and the next recession, paper to AHE July 2012, <http://gesd.free.fr/mrobprof.pdf>

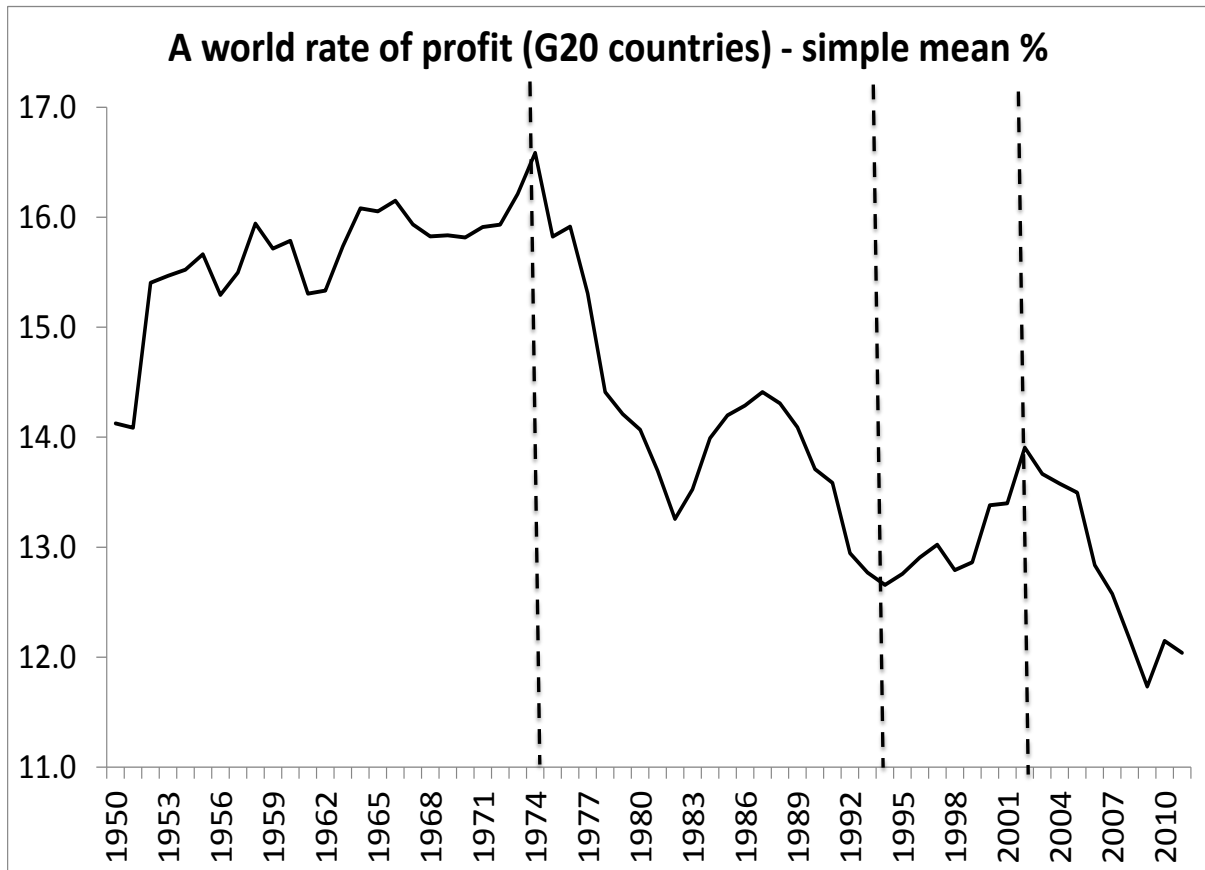
<sup>12</sup> Depankur Basu, Replacement versus historical cost: what's the difference; when does it matter?, 4 January 2012, <https://thenextrecession.files.wordpress.com/2012/11/basu-on-rc-versus-hc.pdf>

My sources and methods for measuring the rate of profit are in the Appendix. My measure is a very simple measure based on a whole economy with no deduction for depreciation or for non-capitalist domestic product or residential real estate. For that reason it can be expected to a very rough estimate and subject to error or distortions. However, surprisingly the results suggest a reasonable level for robustness when compared with other measures by Maito, national measures and from other sources like the Extended Penn World Tables.

The results

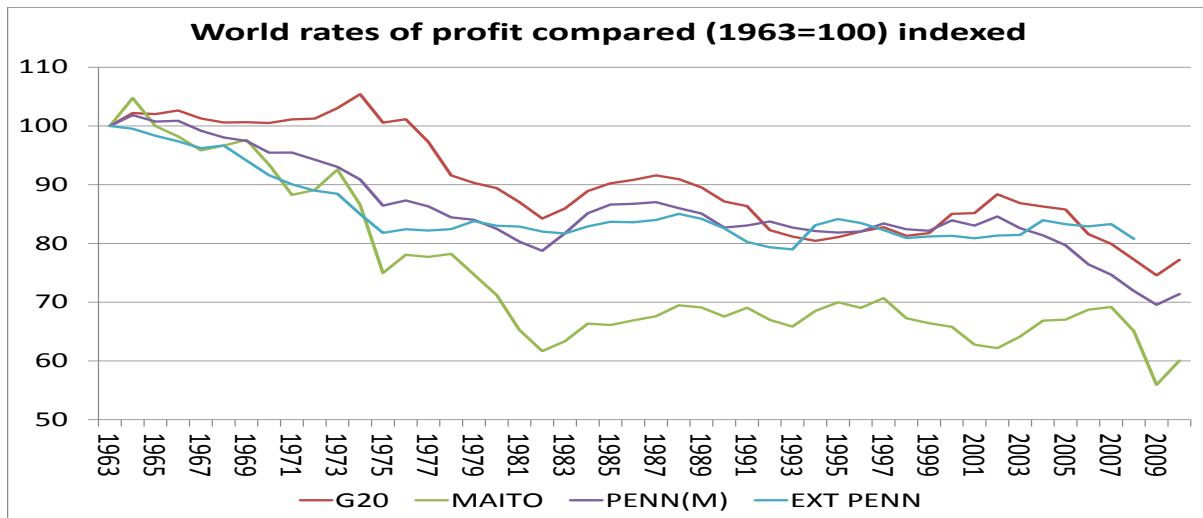
The world rate of profit for the G20 economies since 1950 based on the Penn World Tables exhibits a similar secular decline as does the Maito data, national measures for countries like the US and the UK and from the Extended Penn Tables (Figure 4). There is a significant fall from the first simultaneous international economic slump in 1974-5 to the early 1980s, then a modest recovery before another fall coinciding with the world 1991-2 economic recession. There is a mild recovery in the 1990s until the early 2000s. Since then the G20 rate of profit has slumped, both before the 2008-9 Great Recession and after, with only a tiny recovery up to 2011.

Figure 4



In Figure 5, I have indexed four measures of the world rate of profit from 1963: the G20 measure as above; a measure using the Penn Tables but only covering the same universe of 14 countries adopted by Maito and then the extended Penn table measure used in my earlier paper of 2012.

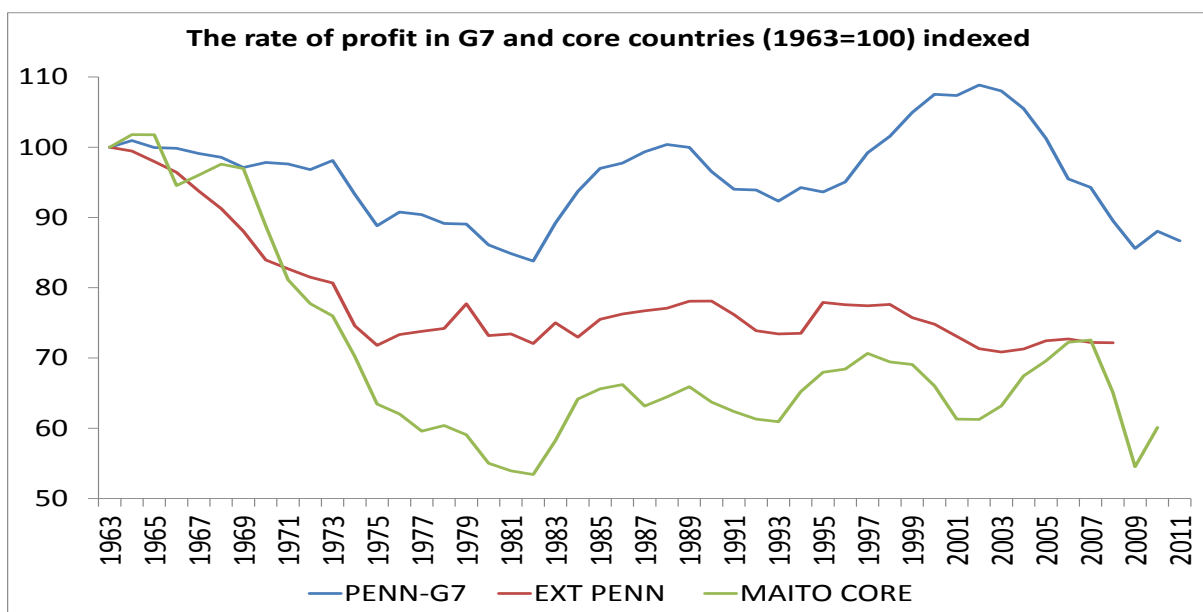
Figure 5



This shows a secular decline in all cases from 1963 to 2010. The sharpest decline is recorded by the Maito measure of about 40% in the rate of profit. The other measures vary between 20% and 30%. All measures record the consolidation and even mild rise in the rate of profit from the early 1980s to a peak in the late 1990s – the so-called neoliberal era. The G20 measure suggests that the rise lasted longer for global capital capitalism – the early 2000s. But all measures record a decline in the rate of profit since then – and all before the Great Recession began in 2008. Recovery in profitability since 2009 has been very small and profitability is at a post-war low.

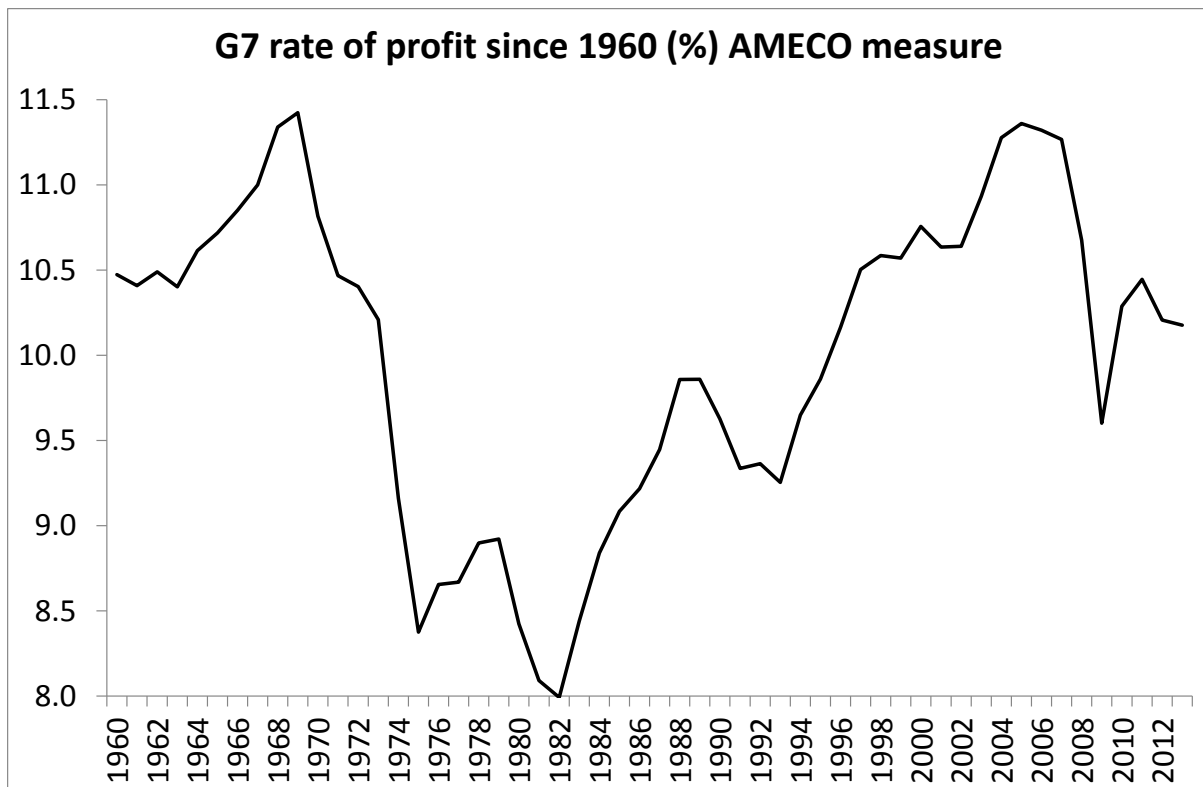
If we look at just the major capitalist economies, either the G7 economies or core countries (as defined by Maito), we find that there is the same secular decline in the core capitalist rate of profit, with that decline coming mostly between 1963 and the early 1980s (Figure 6). Then there is a recovery in the neoliberal period with a peak in the late 1990s on the Maito and Extended Penn table measures, but not until 2005 with the Penn measure, but a very sharp fall thereafter, well before the Great Recession. Neither the Maito nor the Penn measure exhibits any recovery subsequently.

Figure 6



As further backing for these results, I have computed a rate of profit for the G7 countries since 1960 until 2014 using the Eurostat AMECO database. From the AMECO database (see Appendix), I take net national income at market prices and deduct nominal compensation of employees to get total surplus value. Then I divide total surplus value by the net capital stock at current prices (calculated from net capital stock at constant prices multiplied the price deflator for capital formation) plus employee compensation as a percentage. This gives me the result as in Figure 7 below.

Figure 7



Again, the AMECO rate of profit shows a secular decline since 1960 (if a modest one), with a sharp fall between the late 1960s and early 1980s, then a spectacular recovery in the neoliberal period until 2005, two years before the Great Recession. The subsequent fall has been steep with just a modest and failing recovery since 2009 to 2014.

The AMECO data series is useful because it is much more timely than the Penn or Maito data, but it suffers from a similar problem of measuring the whole economy, including real estate and government, although it does account for depreciation.

Both the AMECO and PENN G7 data shows a sharp rise in the rate of profit right up to the early 2000s. Because this data does not deduct for the real estate boom and for government assets, much of which is fictitious capital<sup>13</sup> then I suspect that they overestimate and extend the neoliberal recovery in profitability since 1982.

#### What drove the rate of profit?

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<sup>13</sup> Peter Jones, The falling rate of profit explains falling US growth, paper to 13<sup>th</sup> Australian AHE, January 2013, <http://gesd.free.fr/jonesp13.pdf>



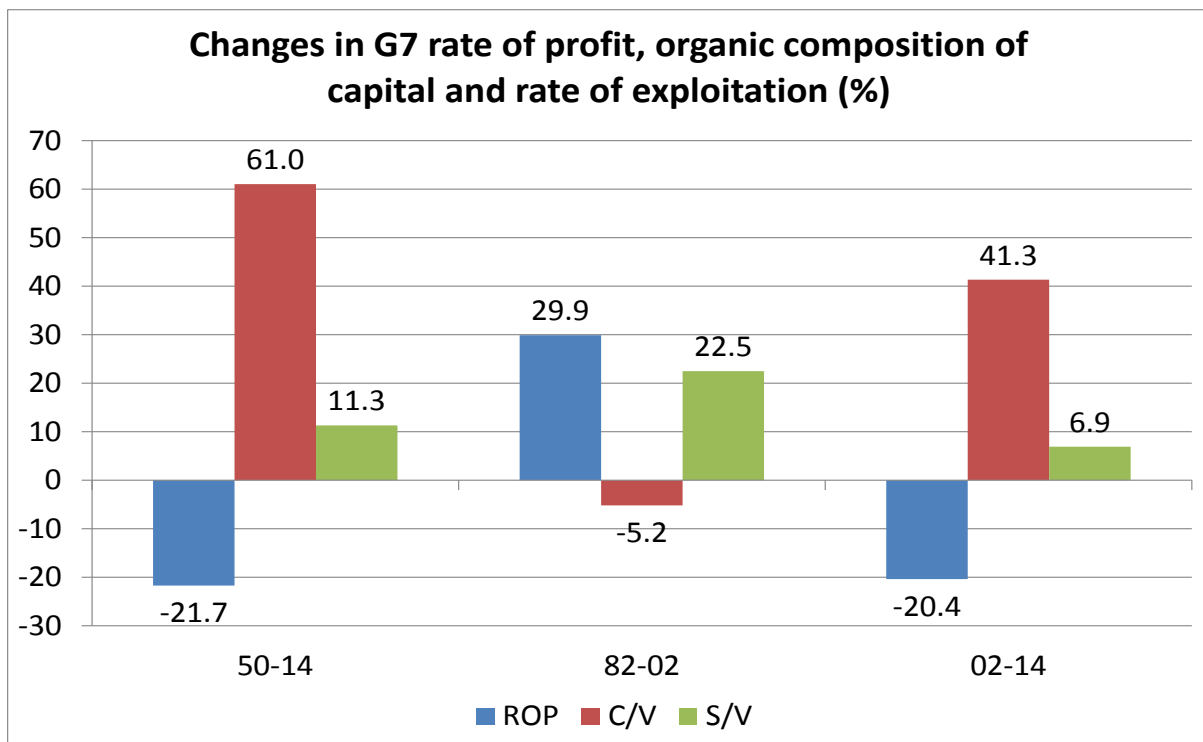
Can we decompose the movement in the rate of profit in the post-war period to see what drove it? According to Marx's law, the rate of profit will move inversely with the organic composition of capital and in the same direction with the rate of surplus value or exploitation. But the former is the tendency and the latter is one of the counter-tendencies. So we would expect the inverse correlation of the organic composition of capital and the rate of profit to be stronger than the correlation between the rate of profit and the rate of surplus value.

And so it is based on the results of the Penn tables for the G7 economies. There is an inverse correlation between the organic composition of capital and the G7 rate of profit between 1950 and 2011 of 0.47, while there is a smaller positive correlation between profitability and the rate of surplus value of 0.15.

Moreover, Marx's law would suggest that any fall in the rate of profit between 1950 and 2014 should be accompanied by a rise in the organic composition of capital and vice versa, while a rise in profitability would also follow if the rate of surplus value were to rise faster than the organic composition of capital.

This has shown to be the case for the US<sup>14</sup>. Now the Penn tables show that it is the case for the G7 economies as a whole (Figure 8). My results show that the rate of profit in the G7 economies fell over 21% between 1950 and 2014 as the organic composition of capital rose over 60%, much faster than the rise in the rate of surplus value at 11%. In the neo-liberal period from 1982 to 2002, the rate of profit rose nearly 30%, while the organic composition declined by 5% and the rate of surplus value rose 22%. In the current 'depression' period, the rate of profit has fallen 20% with the organic composition of capital up 41%, well ahead of the rise in the rate of surplus value at 7%.

Figure 8



<sup>14</sup>M Roberts, Profit warning, <https://thenextrecession.wordpress.com/>; A Freeman, <http://gesd.free.fr/freeman9.pdf>.

## Conclusions

What are the main conclusions from the revised and update analysis from my previous paper in 2012.

**First**, using a database that goes further back than the previous one and covers more countries, it is confirmed that the world rate of profit has been in secular decline in the post-war period, and not just the US as other scholars, including myself, have shown in several instances<sup>15</sup>.

**Second**, my data confirm the results reached by Esteban Maito in his comprehensive and major contribution to the measurement of the world rate of profit, going to back to 1855 in some core countries and for the post-war period for the world.

**Third**, as I argued before, Marx's law of the tendency of the rate of profit to fall does not imply that the rate of profit will fall in a straight line over time. Counteracting factors come into play that for a period of time can overcome the tendency. My results show that this was the case between the mid-1970s or early up to the late 1990s or early 2000s (depending on the measure). The neoliberal period of recovery in profitability did take place but it came to an end well before the Great Recession. World profitability was falling by the early to mid-2000s on most measures.

**Fourth**, the changes in the rate of profit in the post-war period follow Marx's law, namely that the secular decline was accompanied by a rise in the organic composition of capital that outstripped any rise in the rate of surplus value achieved by capitalists, at least in the G7 economies. Profitability rose in the neo-liberal period because the counteracting factor of a rising rate of exploitation dominated.

In my 2012 paper I considered that there was still a significant source of labour supply to be used and exploited under the now dominant capitalist mode of production in many so-called emerging economies. So capitalism had not yet reached its absolute limits<sup>16</sup>. China's industrial workforce is still growing, although it is likely to peak by the end of this decade. India's workforce has much further to go. And there are still areas of the world that are yet to be fully exploited.<sup>17</sup>

However, I also concluded that the data indicated are that the countervailing factors to the tendency for the rate of profit to fall appeared no longer sufficient to drive up the world rate of profit for now. This suggested that further destruction of capital values will be necessary through another significant slump in global capitalism to raise profitability. Only then could the remaining potential value from the world supply of labour be utilised to restore the health of world capitalism. The revised data, which now include the period since the Great Recession began in 2008, reinforce that conclusion.

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<sup>15</sup>; M Roberts, US rate of profit, extending the debate, <http://gesd.free.fr/mr1213.pdf>; G Carchedi, M Roberts, The Long roots of the present crisis, World Review of Political Economy, Spring 2013, A Kliman, The failure of capitalist production, 2014.

<sup>16</sup> W Arthur Lewis first raised the idea that unlimited supplies of labour in emerging economies would provide a huge resource of value as they were brought under the capitalist mode of production; see references

<sup>17</sup> CIVETS are the next layer of highly populated emerging capitalist economies to succeed the BRIC acronym: Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa.

## APPENDIX

### PENN WORLD TABLES

The raw data for the world rate of profit back to 1950 is to be found at

Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer (2013), "The Next Generation of the Penn World Table" available for download at [www.ggdgc.net/pwt](http://www.ggdgc.net/pwt)

<http://www.rug.nl/research/ggdgc/data/pwt/pwt-8.0>

In order to measure the world rate of profit with the Penn World Tables, I have looked at the following categories.

For total value, I have used GDP (Output-side real GDP at chained PPPs (in mil. 2005US\$): PENN code rgdpo.

For employee compensation I have used share of labour compensation in GDP at current national prices: PENN code: labsh

For capital stock, I have used Capital stock at current PPPs (in mil. 2005US\$): PENN code: ck

The rate of profit is:  $(rgdpo - rkdpo * labsh) / ck + rkdpp * labsh$  as a percentage.

### AMECO

The EU Commission AMECO database can be found at:

[http://ec.europa.eu/economy\\_finance/ameco/user/serie/SelectSerie.cfm](http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm)

I used:

net capital stock at constant prices (code: OKNDE.)

net national income at market prices (code: AUVNNE)

nominal compensation of employees (code: AUWCDE)

GFCF - price deflator (code: NLAPIGTE)

The formula for the rate of profit is:

$(AUVNNE - AUWCDE) / ((OKNDE * NLAPIGTE / 100) + (AUWCDE))$  as a percentage

### EXTENDED PENN WORLD TABLES

The raw data for my estimate of the world rate of profit since 1963 is to be found in the Extended Penn World Table v4.0 compiled by Adalmir Marquetti

<http://homepage.newschool.edu/~foleyd/epwt/>

I used the following notations:

10. X\_ Real Gross Domestic Product in 2005 purchasing power parity (Chain Index).

6.  $N$ \_ Number of employed workers.

21.  $w$ \_ Average real wage in 2005 purchasing power parity.

11.  $K$ \_ Our estimated net fixed standardized capital stock in 2005 purchasing power parity

From this the formula for the rate of profit is:  $X - N * w / K + N * w$  as a percentage