Catching up or falling behind: will the poor countries of the world ever close the gap with the rich?

Michael Roberts. Presented at the 19th WAPE Forum.

This paper attempts to answer the question: will the peripheral economies of the so-called Global South close the gap in living standards with the core of advanced capitalist economies in the so-called Global North within the next generation? In order to answer that question, first we shall classify those economies in the core and those in the periphery. Second, we shall define the former as the imperialist bloc, explaining why these economies are imperialist; and define the rest as not imperialist. Third, we shall measure living standards in terms of 1) the average per capita income in each country (taking into account where we can the inequality of incomes within countries); 2) the level of labour productivity; and 3) 'human development' as defined by the UN.

Next, we shall analyse the evidence from these measures in considering various models of development. In particular, we aim to show that the Marxist model of uneven and combined development explains best why the periphery is not catching up and will not do so unless the structure of global accumulation and trade is changed – to put it bluntly, unless capitalism and imperialism is replaced by a commonly owned and democratically planned global economy.

Section 1: Defining the imperialist core and the periphery

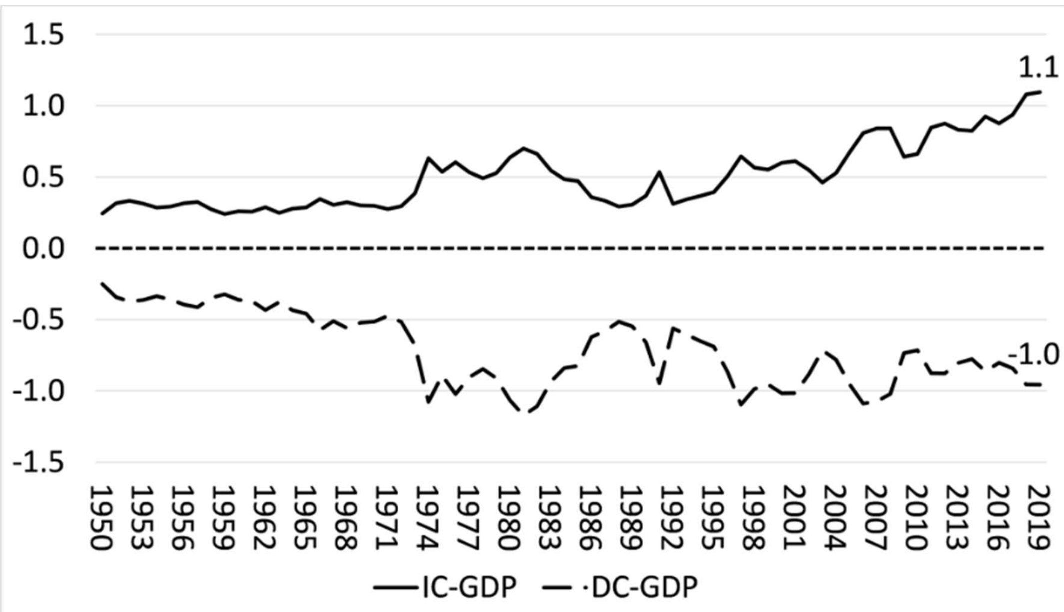
Which are the imperialist economies and which are the periphery?

The bloc of countries defined by Lenin in 1915 as imperialist is more or less unchanged in 2025.[1] There have hardly been any additions to the club since 1915 – it was closed to new members a long time ago, with Japan and Australia being the last entries. Emerging capitalist economies in the last century have been condemned to domination by the imperialist bloc. The imperialist bloc is broadly unchanged and increasing its extraction of wealth income from the rest - including from China, India, Brazil and Russia. In that sense, the so-called BRIC countries cannot be considered even sub-imperialist, let alone imperialist.

We can define the economic foundations of imperialism in Marxist terms as "the persistent and long-term net appropriation of surplus value by the high-technology advanced capitalist countries transferred from the low-technology dominated countries."[2] We can identify four channels by which surplus value flows to the imperialist countries: currency seigniorage; income flows from capital investments; unequal exchange (UE) through international trade; and changes in exchange rates.

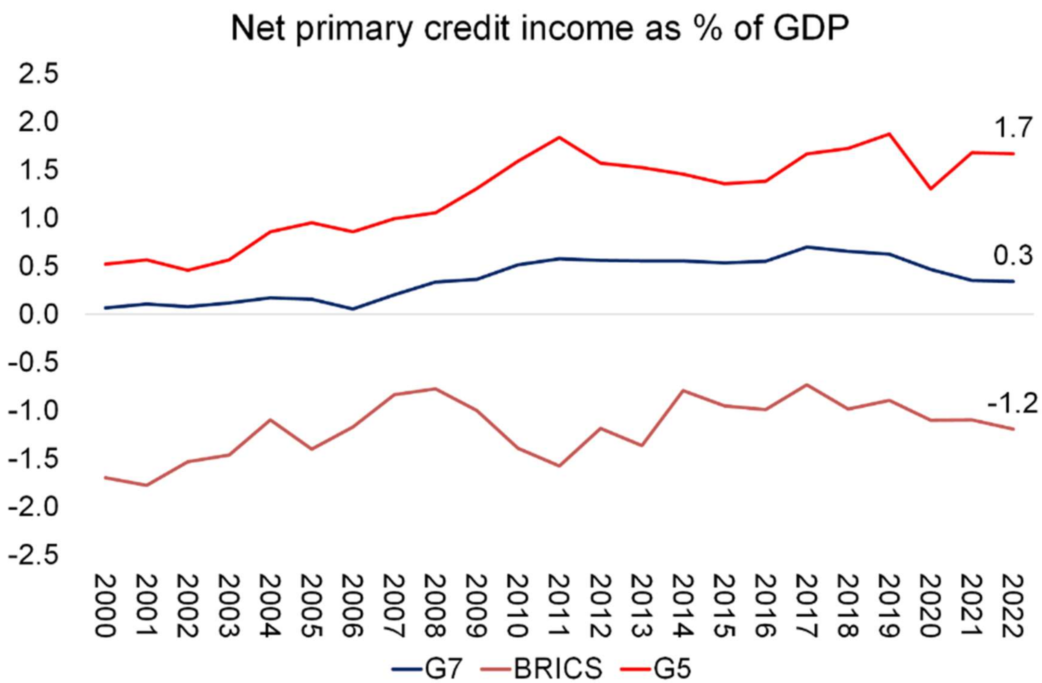
There are many recent studies on measuring the flow of surplus value from poor to rich countries.[3] In this paper, we rely on the work of Carchedi and Roberts.[4] Carchedi and Roberts find that there is an annual average transfer of surplus value to the imperialist countries through international trade of over 1% of their GDP while there is an equivalent net outflow of 1% of the GDP of the major developing economies (BRICs+).

<u>Net flow of value as % of GDP between the imperialist bloc (IC) and dependent countries (DC)</u>



Source: Carchedi and Roberts

Also the imperialist economies (G5) obtain net inflows of income from FDI and porfolio investments. In the 21st century, the top five imperialist economies received an average of 1.7% of their annual GDP from such net inflows of primary credit income. In contrast, the BRICS economies lost 1.2% of their GDP a year in net outflows.



Source: IMF, Carchedi and Roberts

As a percentage of their GDPs, the biggest gainers over the last two decades have been Japan with its huge foreign asset holdings and the UK, the rentier centre of financial circuitry. Those BRICS countries that have lost the most (as a share of their GDPs) have been South Africa and Russia.

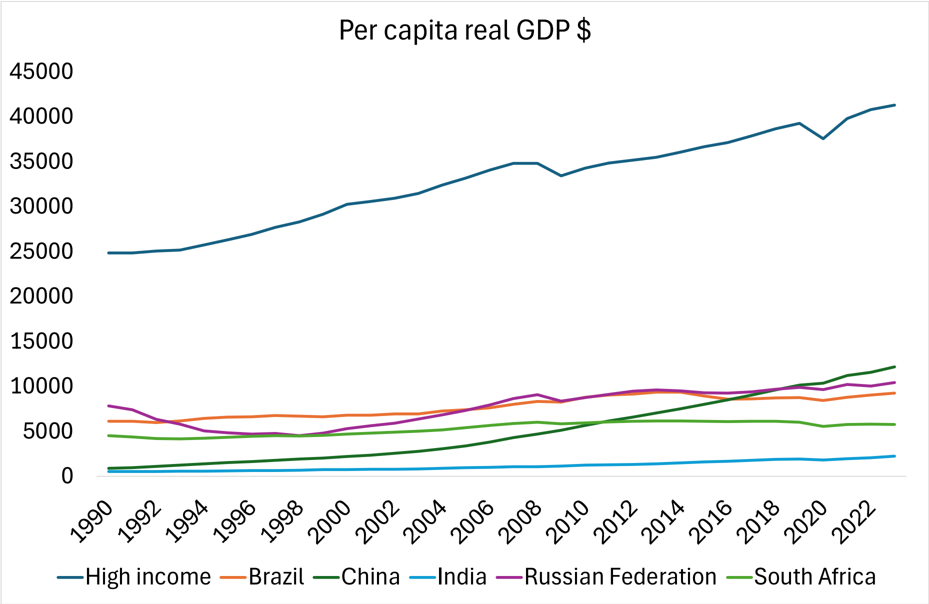
Adding in the 1% of GDP gain/loss in income from international trade described above, then the imperialist bloc benefits by some 2-3% of its GDP each year from exploitation of the BRICS, the major economies of the 'Global South' – in effect equivalent to their average annual growth in real GDP in the 21st century.

Section 2: Catching up

Per capita incomes

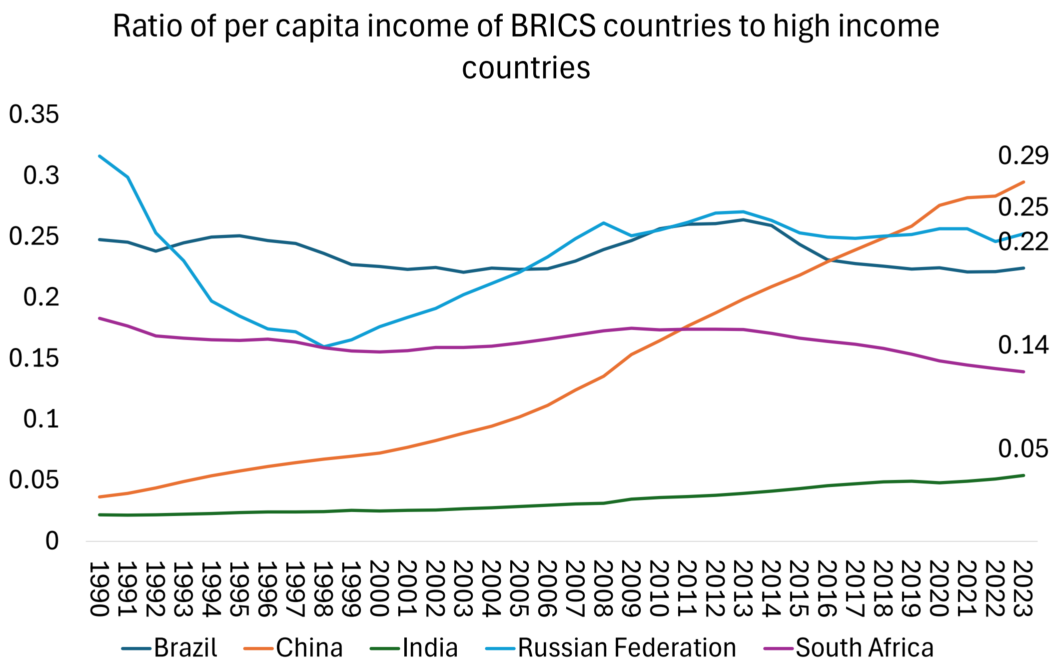
Are the poorer peripheral economies closing the gap in living standards with the advanced capitalist economies, the imperialist core? We can measure this gap by either per capita incomes or by the productivity of labour; or by 'human development'.

The gap in per capita income between what the World Bank calls the 'high income' countries and the BRICS is huge – at least three to five times higher.



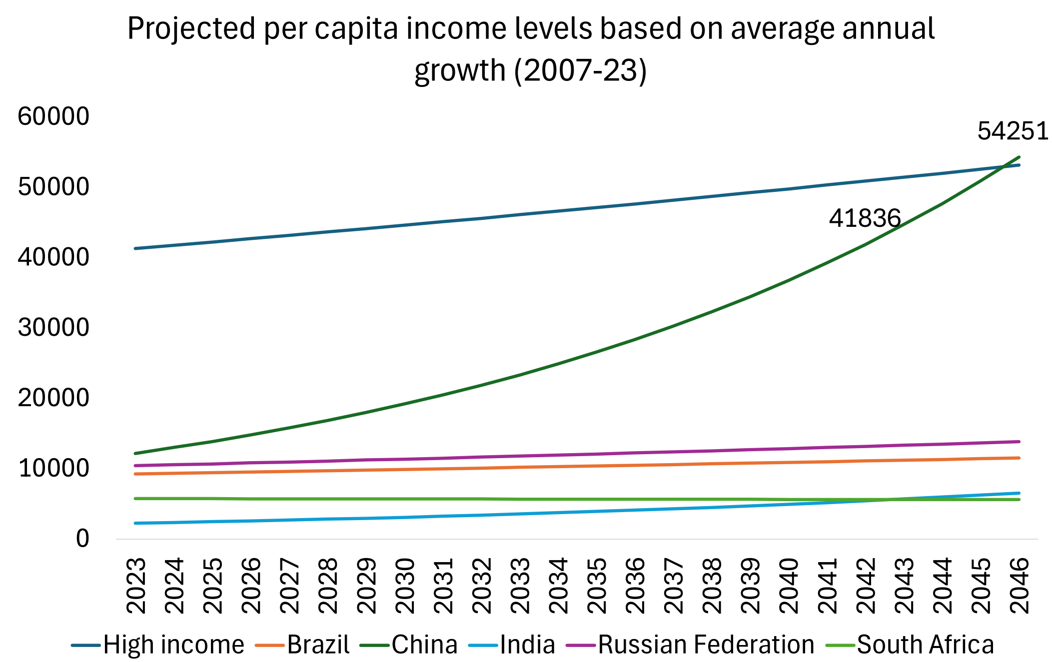
And that gap is not narrowing with one exception, China. Russia's per capita GDP was 31% of the high income group of countries in 1990; in 2023 it was 25%. Brazil's ratio was 25% in 1990 and in 2023 it was 22%. South Africa's ratio was 18% in 1990, in 2023 it was 14%. India's was just 2% in

1990 and it has risen to 5% in 2023. In sharp contrast, China's ratio was not much higher than India's in 1990 (4%) but in 2023 it reached 29%, outstripping the other BRICS.



Source: World Bank, author's calculations

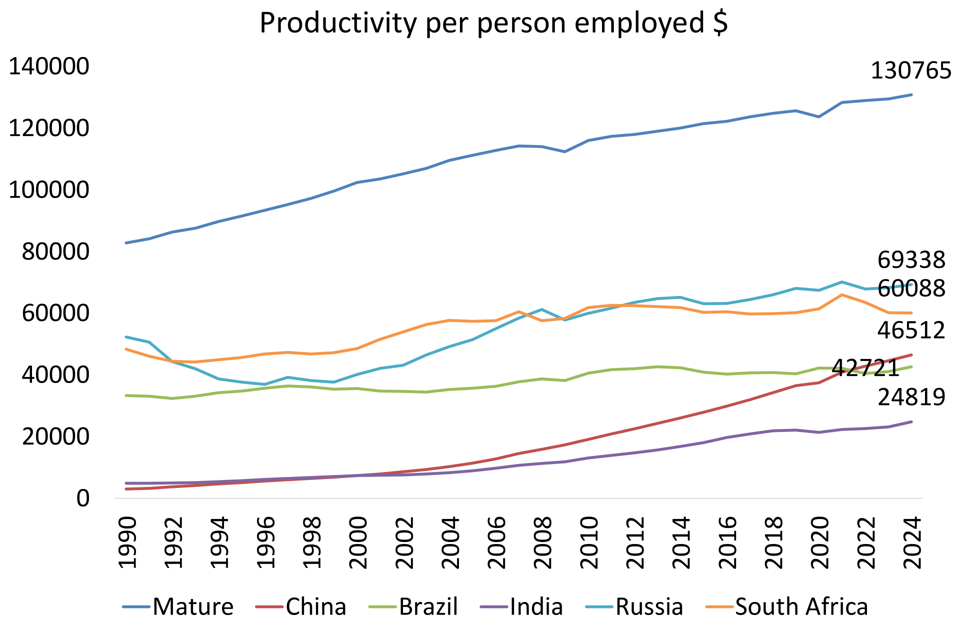
If we extrapolate the average annual growth in per capita income for the period 2007-23 into the future, we find that none of the BRICS will catch up to the high income country level in the next 20 years, except China. The 2023 average per capita income for the high income economies is $41278. China would reach that by 2041 and would match the *projected* level for the high income countries by 2046.[5]



The reality is that, in the 21st century, 'catching up' is not happening for nearly all countries and populations of the 'Global South'. Only China is closing the gap on per capita GDP with the imperialist bloc. Within the BRICS, over the last 40 years, South Africa has fallen further behind, while Brazil and India have made little progress.

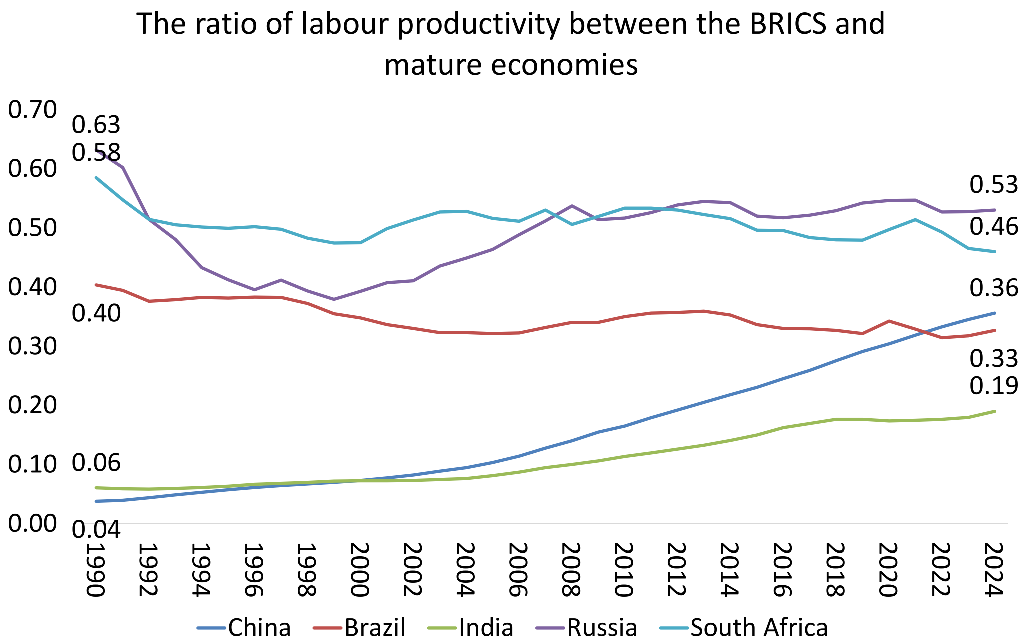
Labour productivity

The productivity of labour is an important measure of the progress of any economy as it measures the productive strength of an economy that is not based on the number of workers or population. And in a world where population and employment growth are set to slow or even reverse during the next 50 years, it is an even more important gauge for 'catching up'. Using the TED database[6], we find that the productivity of labour in the 'mature economies' of the global North is at least twice as high as productivity in the BRICS.



Source: Conference Board TED, author's calculations

And the gap in productivity is not narrowing for Brazil, Russia and South Africa – on the contrary it has widened for all these countries since 1990. India has closed the gap somewhat from a very low level (from 6% in 1990 to 19% in 2024), but there is no comparison with the rise in the productivity of labour in China, which has closed the gap from 4% of the productivity of mature economies in 1990 to 36% in 2024.

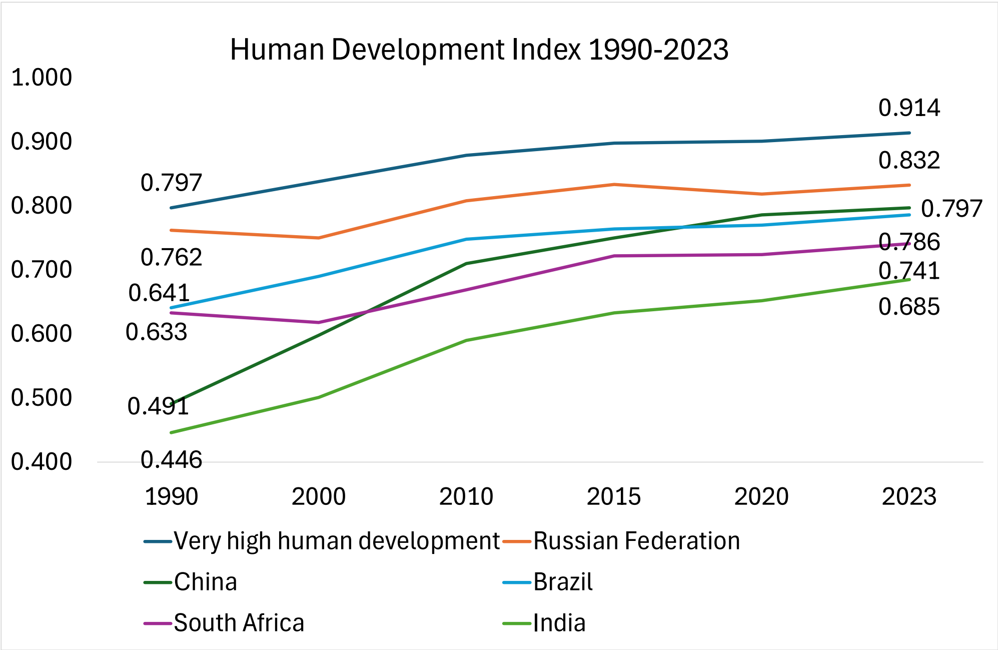


Source: TED, author's calculations

If we extrapolate the average annual growth rate in labour productivity for the period 2007-24 for the future, we find that China will match the current level of labour productivity in the mature economies by 2033 and match the future level of the mature economies just a year later. India will reach that target only by 2050. The other BRICS will not close the current gap at all.

Human development

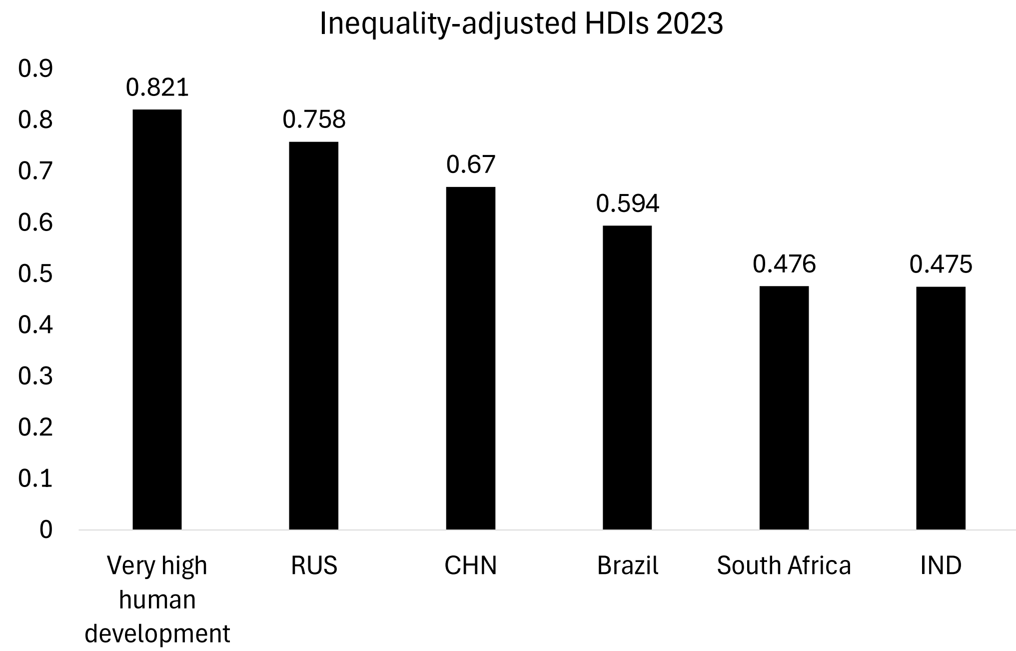
GDP and productivity are relatively narrow measures of living standards for countries. The United Nations has created what it calls a Human Development Index that incorporates not just per capita incomes but also measures of life expectancy and educational attainment.[7] How does the gap in living standards between the imperialist core of rich countries and the rest of the world shape up on this measure? In 2023, the HDI score for countries with 'high human development' – a reasonable citation for the rich imperialist core - was 91.4. All the BRICS countries had much lower HDIs - between 8pts lower (Russia) and 23pts lower (India). Only India and China had narrowed the gap since 1990 but from very low levels.



Source: UN HDI reports

Extrapolating the average annual rise in the HDIs since 2010 to the future reveals that only China will match the current (2023) HDI level of the rich economies and that only by 2039, and it would take until 2046 for China to reach the average rich country HDI in that year. Every other BRIC country will fail to meet either of those targets in a generation.

The HDI does not take into account inequalities of income within countries. And rising inequality of income has been a feature of virtually all economies over the last 40 years. The UN has developed an inequality-adjusted HDI to account for this. Given the very high inequalities of income in most developing and poor countries, it is no surprise to find that the gap between the inequality-adjusted HDI for the rich countries (very high) and the BRICS is even wider than with the basic HDI. All HDIs are lower when adjusted for inequality, but the gap between the BRICS and the high development economies rises to between 20 and 35pts.



Source: HDI report 2025

Again, if we extrapolate the average annual growth in the inequality-adjusted HDIs between 2010 and 2023 to the future, we find that China will match the highly developed economies current HDI of 82.1 by 2041 and so will Russia, but only China has a chance of reaching the *projected* highly developed HDI by 2049, some 25 years on. All other BRICS will still be way behind the rich countries in human development.

Why can't they catch up?: a Marxist view

Why won't the poor countries catch up with the rich countries in per capita income, labour productivity and general human development? There are several theories that have been presented. This paper will consider three main ones.

However, before that, there is one simple counterfactual argument that would help the poor countries close the gap in per capita income with the imperialist North. If the transfer of surplus value from the poor to the rich through international trade and income transfers from financial assets was stopped, then that would reduce the gap and the time involved in doing so. In the earlier section, it was estimated that annual transfers from poor to rich countries was about 2-3% of respective GDPs per year. If we assume that these transfers are ended, then real per capita income growth in the imperialist core would fall to almost zero, while adding 2-3% pts to the growth rates in the periphery (ie the BRICS). Extrapolating this to the future, we find that China would reach the current average per capita of the rich economies by 2038, some four years earlier than the previous forecast. But the rest of the BRICS would still not reach that target at any time in a generation.

So imperialist extraction of surplus value is not a sufficient reason for the failure to catch up. The other reason is the failure of the productivity of labour in the BRICS economies to close the gap with the imperialist economies. Indeed, closing that gap would also reduce the transfer of surplus value from the poor to the rich countries. The question is: why is that the case?

The Marxist thesis is that there is a fundamental obstacle within the capitalist mode of production which makes closing the productivity gap impossible. The problem for the Global South economies is that, as long as capitalism and the law of value remain dominant in their economies, there will be a contradiction between raising productivity and sustaining profitability: trying to raise the former leads to a fall in the latter and thus eventually limits growth.

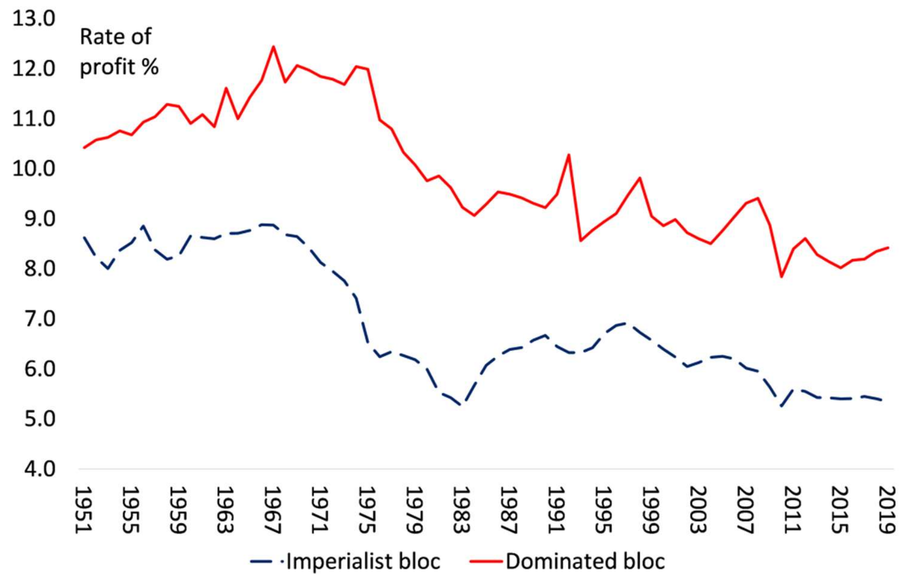
Brazilian Marxist economists, Adalmir Antonio Marquetti, Alessandro Miebach and Henrique Morrone have proposed a model of economic development based on technical change, the profit rate and capital accumulation, on the one hand, and institutional change (ie policies and governments) on the other. Together these two factors could be combined to explain the dynamics of catching up or falling behind.[8]

In Marx's theory of development, the key variable is the rate of profit. Put in its most general terms, if total assets grow, due to the labour-shedding nature of new technologies, employment grows less (or even falls) than the growth in total assets (C/v rises). Since only labour produces value and surplus value, less surplus value (s/v) is generated relative to total investments. The rate of profit falls and so less capital is invested. Thus, the rate of change in GDP falls.

Comparing the organic composition of capital with labour productivity, the Brazilian authors confirm that the 'Marx-biased' pattern of technical change of capital-using and labor-saving occurred in 80 countries. The authors then argue that 'follower' economies can 'catch up' with the leading capitalist economies, with the US at the head, "if accumulation rates are higher in the follower country, leading to a reduction in disparities in labor and capital productivities, the capital-labor ratio, the average real wage, the profit rate, capital accumulation, and social consumption between countries."[9]

The authors' model argues that the rate of profit will tend to fall as labour productivity rises for all countries. Countries with lower labor productivity tend to exhibit higher rates of profit, while countries with high labor productivity tend to have lower rates of profit. The 'follower' countries (the Global South) will generally have higher profit rates than the 'leader' countries (the imperialist Global North) because their capital-labour ratio (in Marxist terminology, the organic composition of capital) is lower. Marx too reckoned that "the profitability of capital invested in the colonies … is generally higher there on account of the lower degree of development."[10]

As these countries try to industrialise, the capital-labour ratio will rise and so will the productivity of labour. If the productivity of labour grows faster than in the leader countries, then catching up will take place. However, capital productivity (or the profitability of capital accumulation) will tend to decline and this eventually will slow the rise in labour productivity. In a joint work by Guglielmo Carchedi and me, using Marxist categories, we also found that the dominated countries' profitability starts above that of the imperialist ones because of their lower organic composition of capital but also "the dominated countries' profitability, while persistently higher than in the imperialist countries, falls more than in the imperialist bloc. Since 1974, the rate of profit of the imperialist (G7) bloc has fallen by 20%, but the higher rate of the dominated bloc has fallen by 32%. This leads to a convergence of the two blocs' profit rates over time."[11]



Source: Carchedi and Roberts 2021

The Brazilian authors also identify the trajectory of the relative profitability of capital between the leaders and the followers in the process of development and the importance of this in 'catching up'. "The advantages of lower mechanization in follower countries, implying in smaller labor productivity and higher capital productivity and, therefore a higher profit rate, begin to erode when capital productivity declines more rapidly than labor productivity increases. It indicates that the follower country is gradually losing its backwardness advantage as the disparities in profit rates and incentives for capital accumulation diminish relative to the leading country, potentially jeopardizing the catching-up process." Capital accumulation plays a fundamental role in catching up with the leader country. However, high capital accumulation in the follower country can reduce the profit rate to a level lower than the leader, posing a risk in the process of catching up.

What this tells us is that many Global South countries will never 'bridge the gap' on labour productivity and thus on living standards because the profitability of capital in the Global South will quickly dissipate compared to the Global North. The authors were able to analyse the dynamics of the catching up process. They found that "there is no consistent pattern of catching up, about half of the sample fell further behind. The increasing data spread as the labor productivity gap and the distance from the leader expanded suggests that while some countries benefit from their backwardness, others in a similar situation do not take advantage of it. "

Why they can't catch up? the World Bank view

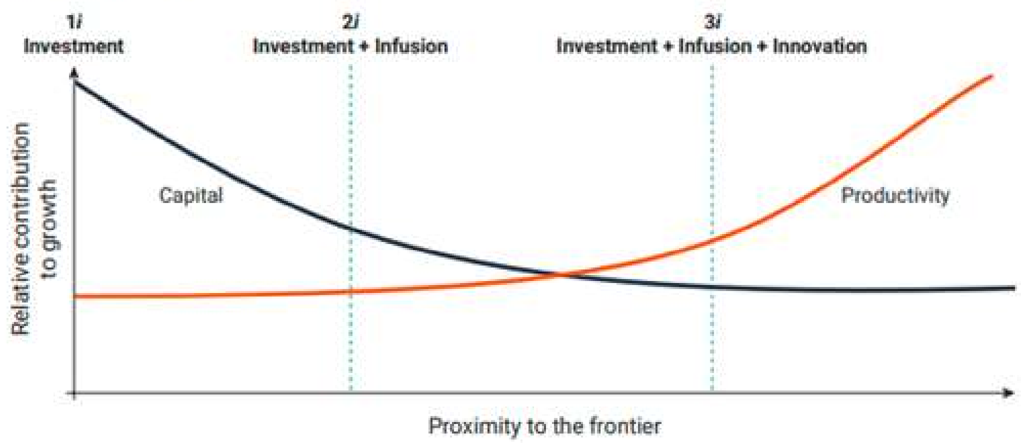
The World Bank has a different model of development for poor countries and an explanation for failing to 'catch up'.[12] The World Bank admits that most Global South economies are not closing the gap in per capita income or labour productivity with the advanced capitalist economies. In the past, it recognised that there are many very poor countries like those in sub-Saharan Africa that are stuck in desperate poverty. But the Bank's economists have generally been more optimistic for what it calls the 'middle-income economies', those with annual income per capita ranging from $1,136 to $13,845.

Average annual income growth in these middle-income countries has slipped by nearly one-third in the first two decades of this century—from 5 percent in the 2000s to 3.5 percent in the 2010s. And the World Bank concludes that "a turnaround is not likely soon because middle-income countries are facing ever-stronger headwinds. They are contending with rising geopolitical tensions and protectionism that can slow the diffusion of knowledge to middle-income countries, difficulties in servicing debt obligations, and the additional economic and financial costs of climate change and climate action."

The explanation for the failure to catch up, according to the World Bank, is down to the middle-income countries failing to adopt the right 'development strategy'. You see, these countries have relied too long on just trying build up capital stock, which is beginning to 'yield diminishing returns". In the language of neoclassical economics, the World Bank economists reckon that "factor accumulation alone is likely to steadily worsen results—a natural occurrence as the marginal productivity of capital declines." This could be put clearer in Marxist terms. Here is how Adalmir Marquetti puts it: "The World Bank economists recognize that the marginal productivity of capital, the profit rate in the neoclassical tradition, declines due to capital accumulation during ‘catching up’. But it’s the falling profit rate that is the major determinant of decline in capital accumulation and investment. The problem is the profit rate approximates towards the level of the Unites States much faster than labor productivity. Essentially, the middle-income trap is a “profit rate trap”.[13]

Having recognized the ‘profitability trap’, but in a neoclassical economics format, the World Bank proposes a development solution where the ‘middle-income’ economies will ‘infuse’ better technology from the Global North and then inspire ‘innovation’ by private firms. “In the first, investment is complemented with infusion, so that countries (primarily lower-middle-income countries) focus on imitating and diffusing modern technologies. In the second, innovation is added to the investment and infusion mix, so that countries (primarily upper-middle-income countries) focus on building domestic capabilities to add value to global technologies, ultimately becoming innovators themselves. In general, middle-income countries need to recalibrate the mix of the three drivers of economic growth—investment, infusion, and innovation—as they move through middle income status”. Thus there are the three Is.

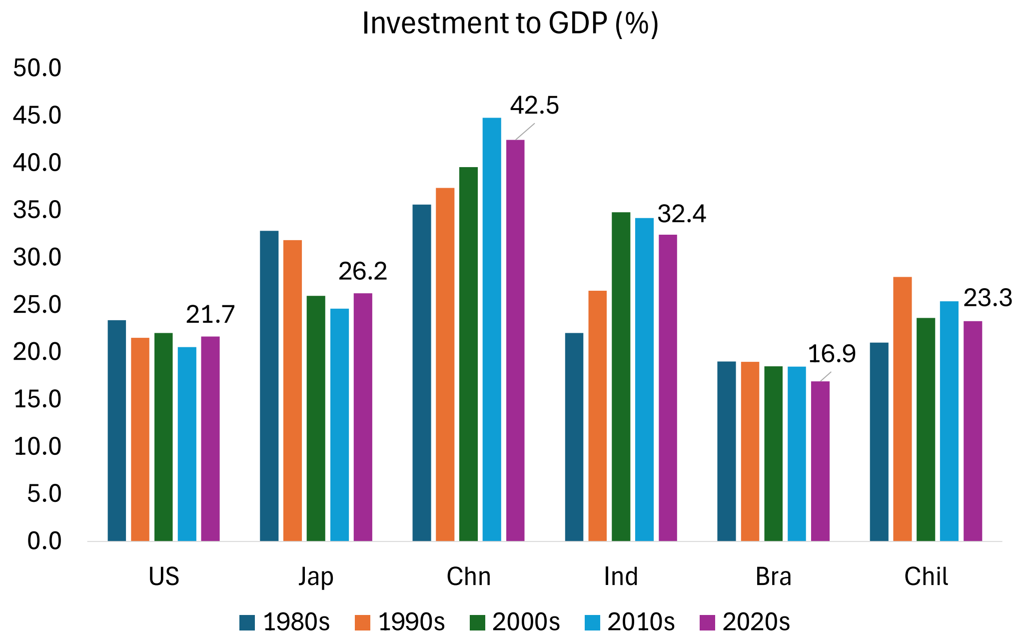
Figure O.4 Middle-income countries must engineer two successive transitions to move to high-income status



Source: World Bank

But this theory of innovation lacks evidential support. As John Ross puts it, this is "a confused idea that innovation can be a substitute for investment, rather than investment being the complement of innovation and that innovation must be embodied in investment. As the data confirm, as long as an innovation remains only an idea, it does not greatly affect the economy; it is only when it is embodied in actual investment that it becomes powerful."[14]

Ross shows that the correlation between the percentage of R&D, which is the key to innovation, in GDP and annual GDP growth for the world's 10 largest economies is extremely low. There is no evidence of a *direct* influence of R&D on GDP growth, while there is an extremely close relationship between the percentage of net fixed capital formation in GDP (investment) and GDP growth. What matters first is the level of productive investment in an economy. China's investment to GDP ratio is double that of the US and more than double that of Brazil. And China's investment to GDP ratio has risen 20% since the 1990s, while Japan's has fallen 20% and Brazil by 11%. China has been the fastest growing economy in the last 35 years, while Japan and Brazil have been the slowest growing.



Source: IMF

High investment leads to increased ‘innovation’. But in a capitalist economy that investment growth is subject to the limitations of falling profitability.

Why are they not catching up? The institutional model

Daron Acemoglu, Simon Johnson and James A Robinson were recently awarded the Nobel (really the Riksbank prize) in economics “for studies of how institutions are formed and affect prosperity.”[15] Daron Acemoglu is a professor at the Massachusetts Institute of Technology. Simon Johnson is a professor at the same university. And James Robinson is a professor at University of Chicago.

Their thesis is this: when Europeans colonised large parts of the globe, the institutions in those societies changed. In some places the aim was to exploit the indigenous population and extract resources for the colonisers’ benefit. But in others, the colonisers formed inclusive political and economic systems for the long-term benefit of all. Inclusive institutions were often introduced in countries that were poor when they were colonised, over time resulting in a generally prosperous population.

On the other hand, some countries become trapped in a situation with extractive institutions and low economic growth. The introduction of inclusive institutions would create long-term benefits for everyone, but extractive institutions provide short-term gains for the people in power. As long as the political system guarantees they will remain in control, no one will trust their promises of future economic reforms. According to the authors, this is why no improvement occurs.

Supporting this model, the winners assert that political changes precede economic changes and not vice versa. Two points follow from this. First, if growth and prosperity go hand in hand with ‘democracy’ and the likes of the Soviet Union, China, Vietnam are considered to have elites that are ‘extractive’ or undemocratic, how do our Nobelists explain their undoubted economic performance? Apparently, it is explained by the fact they started out poor and had a lot of ‘catching up’ to do, but soon their ‘extractive’ character will catch up with them and China’s hyper growth will run out of steam.

Second, is it correct to say that political reforms are necessary to set things on the path to prosperity? There may be some truth in that: would Russia in the early 20th century be where it is today without the 1917 revolution or China be where it is in 2025 without the revolution of 1949. But our Nobelists do not present us with those examples: their examples are getting the vote in Britain in the 19th century or independence for the American colonies in the 1770s.

The evidence for this institutional theory based on ‘democracy’ as the driver of progress is limited. One study applied meta-regression analysis to the population of 483 estimates derived from 84 studies on democracy and growth. Taking all the available published evidence together, it concluded that democracy does not have a *direct i*mpact on economic growth.[16] Yet another study found that the pattern of economic growth and development in OECD countries differed from that in developing countries. For OECD countries, real per capita GDP growth was mainly affected by previous per capita GDP growth, and the effect of democracy on per capita economic growth was negative. Moreover, the results indicated that in developing countries, democracy alone had not triggered economic growth and that real per capita GDP growth depended on other important structural variables such as social and physical infrastructure.[17]

Surely, the state of the economy, the way it functions, the investment and productivity of the workforce has an effect on development? The emergence of capitalism and the industrial revolution in Britain preceded the move to universal suffrage. The English Civil War of the 1640s laid the political basis for the hegemony of the capitalist class in Britain, but it was the expansion of trade (including in slaves) and colonisation in the following century that took the economy forward.

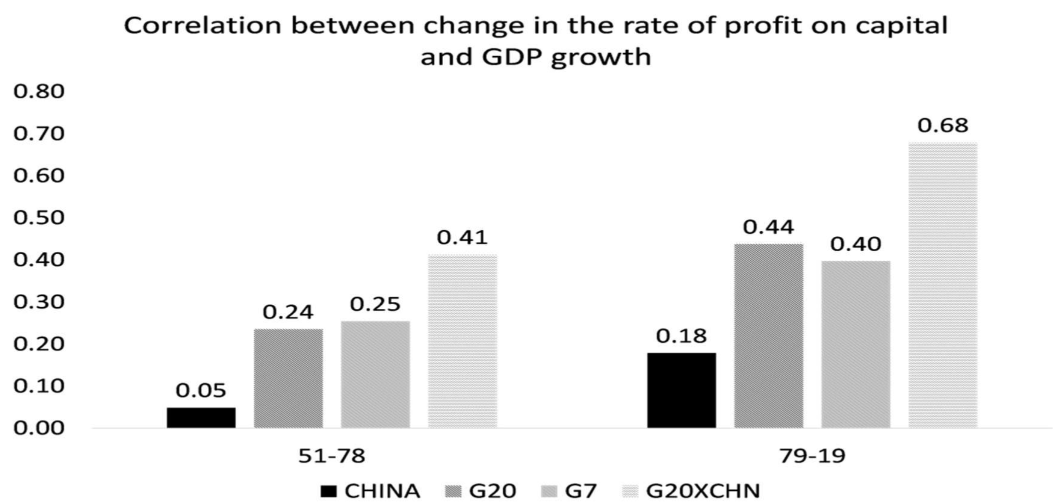
China the exception: profitability and productivity

Why did China, one of the poorest countries in the world in the 1950s, jump quickly to 'middle-income' status by the 1990s and continue to close the gap with the advanced capitalist economies in the 21st century? Why have countries like Vietnam and even Laos also followed successfully the Chinese model of development? The World Bank economists say nothing on this. As Marquetti points out: "Our book includes a figure showing that China, Vietnam, and Laos maintained high investment levels despite declining profitability. This is a fundamental condition for catching up."

"If the investment rate in the follower country is determined by profitability in a market economy or by the state bureaucracy, it must be higher than the leader in order to have catching up in labor productivity. The problem is that, in most cases, a high capital accumulation reduces capital productivity and the profit rate for a relatively stable wage share. The decline in profit rate would require further social control over savings and investments to maintain the process.

"Interestingly, China, one of the most successful countries in narrowing the labor productivity gap after 1980, maintained the largest and very stable difference in capital accumulation in relation to the United States throughout the examined period. It contrasts with the Japanese case, where the difference in capital accumulation declined and turned negative after 1990, a period during which Japan lagged behind."

While the correlation between real GDP growth and changes in the rate of profit on capital in the major economies is high, the correlation is very low for China.



Source: Roberts 2022

Indeed, as the Brazilian authors say: "the aspects discussed above point to the fundamental relevance of state capacities as the primary locus where strategies and conditions for industrialization are conceived and implemented. Unlike the market, which allocates resources primarily to maximize profits without guaranteeing national development, the state remains, in the XXI Century, the political and economic entity capable of intentionally driving industrialization." And they point out that "China increased its investment rate, even in the face of declining profitability ..... China has demonstrated a capacity to adapt to developmental challenges, suggesting that the labor productivity gap between China and the US, even if at a lower velocity, will continue to decline."

Conclusions

1. On our various measures, no 'developing' economy is catching up with the imperialist core, with the exception of China.
2. Capitalist development takes place through 'Marx-biased technical change' ie the mechanization of production through industrialization is central to raising labor productivity. But rapid mechanization under capitalism leads to a decline in 'capital productivity' (ie in the profit rate).
3. And in most developing countries this decline has been fast enough to reduce eventually the growth in labour productivity, thus limiting the ability of developing economies to close the gap with the developed capitalist economies.

4. Thus state intervention becomes essential, expanding investment even as the profit rate declines, as in China. While adopting state-led and planned national development and industrialization projects does not guarantee that a country will catch up, opting for a free-market approach will lead to failure.

A recent Piketty-led study on catching up estimated what it would take to bring about 'global convergence' in productivity levels. The study projected that global convergence could be achieved by 2100 but this would require that labour productivity growth average 4.5% a year from hereon, or as fast as China and East Asia achieved in the last 35 years.[18]

Is that achievable? The study concluded that "the poorest regions in the world would benefit from massive investment plans in human capital (especially education and health) and in infrastructures (in particular new energy and transport systems), together with a transformation of the trade regime and the international economic system." This is inconceivable in the current imperialist world.

---

[1] V. Lenin, Imperialism: the highest stage of capitalism, 1916, https://www.marxists.org/archive/lenin/works/1916/imp-hsc/

[2] Carchedi and Roberts, The economics of modern imperialism, 2021, Historical Materialism 29.4 pp 23-69. https://doi.org/10.1163/1569206X-12341959

[3] Hickel, Jason, Dylan Sullivan and Huzaifa Zoomkawala 2021, 'Plunder in the Post-Colonial Era: Quantifying Drain from the Global South through Unequal Exchange, 1960–2018', New Political Economy, 26, 6: 1030–47, https://doi.org/10.1080/1356346 7.2021.1899153; Ricci, Andrea 2021, Value and Unequal Exchange in International Trade: The Geography of Global Capitalist Exploitation, London: Routledge.

[4] Carchedi and Roberts op cit.

[5] It could argued that China's average per capita income growth of just under 7% a year from 2007-23 will not be matched over the next 20 years. But then that caveat could be applied to high income and other BRICS economies too. It is not unreasonable to assume that the gaps in per capita income growth will be fairly similar over the next 20 years.

[6] https://www.conference-board.org/topics/total-economy-database

[7] The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions. The health dimension is assessed by life expectancy at birth, the education dimension is measured by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age. The standard of living dimension is measured by gross national income per capita. The HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing GNI. The scores for the three HDI dimension indices are then aggregated into a composite index using geometric mean. https://hdr.undp.org/data-center/human-development-index#/indicies/HDI

[8] Adalmir Antonio Marquetti, Alessandro Miebach, Henrique Morrone, Unequal Development and CapitalismCatching Up and Falling Behind in the Global Economy, https://www.routledge.com/Unequal-Development-and-Capitalism-Catching-Up-and-Falling-Behind-in-the-Global-Economy/Marquetti-Miebach-Morrone/p/book/9781032121642

[9] Nevertheless, it is these two measures that the authors measure, using the fantastic Extended World Penn Tables that Adalmir Marquetti has perfected over the years from the Penn World Tables. "The dataset we employ is the Extended Penn World Tables version 7.0, EPWT 7.0. It is an extension of the Penn World Tables version 10.0 (Feenstra, Inklaar and Timmer, 2015), associating the variables in the data set with the growth-distribution schedule. The EPWT 7.0 allows us to investigate the relations between economic growth, capital accumulation, income distribution, and technical change in the processes of catching up and falling behind."

[10] K Marx, Capital Volume 3, Chapter 14.

[11] The Economics of Modern Imperialism, op cit.

[12] World Bank Development Report 2024, The middle income trap, https://www.worldbank.org/en/publication/wdr2024

[13] Guglielmo Carchedi and I reached the same conclusion in our book, Capitalism in the 21st century (pp211-213*)*, "in a capitalist economy, lower profitability comes into conflict with productivity growth".

[14] J Ross, What will determine the outcome of the economic protracted war between China and the US? – see appendix on innovation. https://www.socialistaction.net/2025/05/30/what-will-determine-the-outcome-of-the-economic-protracted-war-between-china-and-the-u-s/

[15] Ted Trainer,The 2024 Nobel Prize for Economics: An example of how conventional economics misrepresents reality, Real-world economics review, Issue no. 110 https://www.paecon.net/PAEReview/issue110/Trainer110.pdf

[16] Hristos Doucouliagos and Mehmet Ali Ulubaşoğlu, Democracy and Economic Growth: A Meta-Analysis, American Journal of Political Science, Vol. 52, No. 1 (Jan., 2008), pp. 61-83 (23 pages), https://www.jstor.org/stable/25193797

[17] Jakob de Haan and Clemens L. J. Siermann, New Evidence on the Relationship between Democracy and Economic Growth, Vol. 86, No. 1/2 (Jan., 1996), pp. 175-198 (24 pages), Springer Nature https://www.jstor.org/stable/30027075

[18] Nitin Bharti1, Amory Gethin2, Thanasak Jenmana3 Zhexun Mo4, Thomas Piketty3, Li YangHuman Capital, Unequal Opportunities and Productivity Convergence: A Global Historical Perspective, 1800-2100, World Inequality Lab, Working paper, 2025/15, https://wid.world/document/human-capital-unequal-opportunities-and-productivity-convergence-a-global-historical-perspective-1800-2100-world-inequality-lab-working-paper-2025-15/