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Capital Devaluation and Imperialism Today – Some Working Hypotheses

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Conteúdo

In 2024, the country that exported the most capital, the United States, had 0.7% of its past investments in Africa. Of these, more than 1/3 (36.5%) went to mining activities (US BEA, 2025). In 2023 the world's second-largest economy and the one that has invested the most in global infrastructure, China, had invested only 1.4% of its capital in Africa (China Statistical, 2024). Despite this, Chinese capital controls around 10% of African mining production and is the continent's main trading partner. An ongoing diplomatic move by the US administration is on the way to counter "China's growing influence" in Africa, which holds "nearly 30 percent of the world's proven reserves of minerals like cobalt, lithium and rare earth elements" (Daftari, 2025:15-16). If all current imperialism followed these lines, we would be witnessing complete *déjà vu*. This is by no means the case and in order to understand some of the most important transformations in accumulation today, it is necessary to begin by reviewing a key issue of political economy.

Capital only produces commodities for profit. Yet, the accumulation of capital implies its devaluation – its devaluation as productive capital. This contradiction is easily explained. To increase the profit rate, productive capital must produce at decreasing unit costs, i.e., by saving social labour. Savings begins with any innovation that requires less direct labor per unit produced. As a result, the new unit value will decrease, while the value corresponding to dead labor (labor previously materialized in ideas, equipment, and materials) tends to increase percentage-wise. Since surplus value is a fraction of the labor directly used, this kind of changes in the technical composition of capital supports the view of a long-term fall in the average rate of profit. Still, it does not prevent companies using the new technology from making super profits during the period in which they are able to monopolize it. This point is consensual (otherwise there would be no explanation for innovations) and, as section 3 will show, remains very important for explaining today's imperialism.

But parallel to the changes in the technical composition of capital, which are discontinuous in separate productive sectors, there is a continuous devaluation effect that affects all of them. As innovations spread, all the fractions of capital that purchase inputs from each other benefit, albeit unevenly, from productivity gains and, through their new production prices, drive them downstream. Thus, there is a continuous *external* and *circular* devaluation in capital accumulation: external because, for each fraction of

capital, devaluation occurs before the start of its own work process; circular because the effects of accumulated devaluation also affect the fraction of capital that initiated the innovation process. Sooner or later this continuous capital devaluation makes it cheaper to produce surplus value[1] because, as the value of wage goods is affected, the necessary labor time (necessary for the maintenance of the labor force) decreases. Such decrease would, in itself, be a factor for the increase of the average rate of profit. In fact, as the external-circular devaluation tends to decrease the value of *all* productive inputs, a lower value composition of capital must, *coeteris paribus*, always result in in a trend of rising profit rate[2] (Santos, 2024).

If the rate of profit tends to increase as capital inputs tend to zero[3], why is it a major contradiction to the capitalist mode of production? First of all because zero labor (a complete replacement of living labor by a fully automated production) means no surplus value and consequently no profit. But long before that, the system is supposed to change: if variable capital, that is, the amount needed to support workers and their families, approaches zero, why would people seek wages instead of working for themselves (in newly reorganized communities) with very high levels of productivity? The idea that capital production faces inevitable decline because of a contradiction based on the success it achieves in its key variable (a rising profit rate) took decades to be considered[4]. Its

[1] In labor theory of value, the rate of surplus value relates the unpaid labor time transferred to capital as surplus value (**s**) to paid labor time (the wages representing the labor necessary for the maintenance of workers, i.e., variable capital, **v).** The rate of surplus value (**s'**) is: **s / v.**

[2] The rate of surplus value (**s**') becomes the rate of profit (r) if all other inputs of materialized social labor involved in the production of **s** are added to the denominator. Constant capital **c** represents the value of patents, equipment, and raw materials. Formally, the rate of profit **r = s / (v+c)**. With few exceptions, such as in certain mining industries, the value **c** represents capital goods that are purchased and are therefore **external** to the production cycle that results in **s**. For an arithmetic demonstration of the external-circular devaluation, see section 2.

[3] Capital devaluation is a trend with many counterbalancing movements. The main one is that not all innovations are labor-saving : many new industries are designed to satisfy new social needs and imply higher capital organic composition. There are also many failed investments, i.e., wasted capital which contributes to increase the average value composition of total capital. (Sweezy, 1976:247-251) But since the rate of profit can only increase by reducing capital inputs per unit produced and automation advances cumulatively, which means that a growing share of social production *already* tends to reduce capital to zero, this trend could only be reversed in the absurd hypothesis that the capital of new industries would always exceed that of old ones. In other words, the number of new social needs to be met would always be greater than all those already met.

[4] The political economy of the 19th century associated the historical limits of capital with the opposite trend (a decreasing profit rate). Marx contemplated and theorized both hypotheses. But even today, almost all analysis based on labor theory of value is dominated by the tendency toward a falling rate of profit or, at most, tempered by the centrist idea that the rate of profit is the result of fluctuations without a definable trend. (Husson, 1999; 2010).

formulation became possible in the context of the United States "big business" during the second half of the 20th century when data coming from large corporations showed that "the surplus will have a strong and persistent tendency to rise" (Baran; Sweezy,1978: 75). Along with monopoly prices, the compression of costs through cross-devaluations between fractions of capital was correctly identified as one main factor of the growing profit margin of monopoly capital[5].

According to this pioneering essay, it was not necessary to wait for the effects of the contradiction that would lead to the abolition of the law of value to see disruptions in accumulation: due to inertia, the system suffers from a permanent recession. As the demand for the commodities that monopoly firms produce does not increase in proportion to the devaluation of its respective productive capital, under-production is the norm. The relative decrease of demand and the cost cuts that allow for break-even points (determined by fixed costs) to move further and further away from full productive capacity increase the gap between the potential surplus produced and real output. Baran and Sweezy therefore validated the Keynesian multiplier: any sort of external" push to solvent demand that reduces the gap and bring about a new phase of expansion. By realizing bigger sales, the scale effect allows for the same technical composition of capital to produce higher rates of profit: as fixed costs decrease so unit costs and the *value composition* of capital will also decrease.

However the kind of market expansion that Baran and Sweezy considered capable of producing significant increases in *both* the mass and the rate of profits imply events such as world wars or booms linked to radical innovations. In other words, changes in social demand whether for weapons, rails or automobiles. Thus, escaping chronic depression also implies the need for technological changes and fixed assets replacement. This means that although Baran and Sweezy had pointed out the importance of the external-circular devaluation of capital (changes in the *value compos*ition of capital), for them the dynamics of monopoly capital ultimately relied on changes in the technical composition of capital with increases in the mass of profit. That is, it implied not only a change in the means of production but also an *increase in the scale of production*. But it can be argued

[5] But Baran and Sweezy still restricted the upward trend in surplus to *that* particular stage in the history of capital (monopoly capital) and not to a necessary trend of all capitalist production (Baran; Sweezy, 1978:79).

that the external and circular devaluation of capital allows the rate of profit to increase, *regardless of the scale of production* (Santos, 2024).

Section 1 seeks to show some evidences about the rising rate of profit in today's accumulation. Section 2 focus on how the evolution of capital exports over the last four decades helps framing this discussion. The third point draws conclusions from the dynamics of capital devaluation regarding the coming stages of accumulation and the conflicts they entail.

In these sections conflicts are referred to only in their dialectic with accumulation, without any geopolitical or historical content. It will be up to other attempts to verify how these mechanisms of confrontation behave politically, militarily, and ideologically.

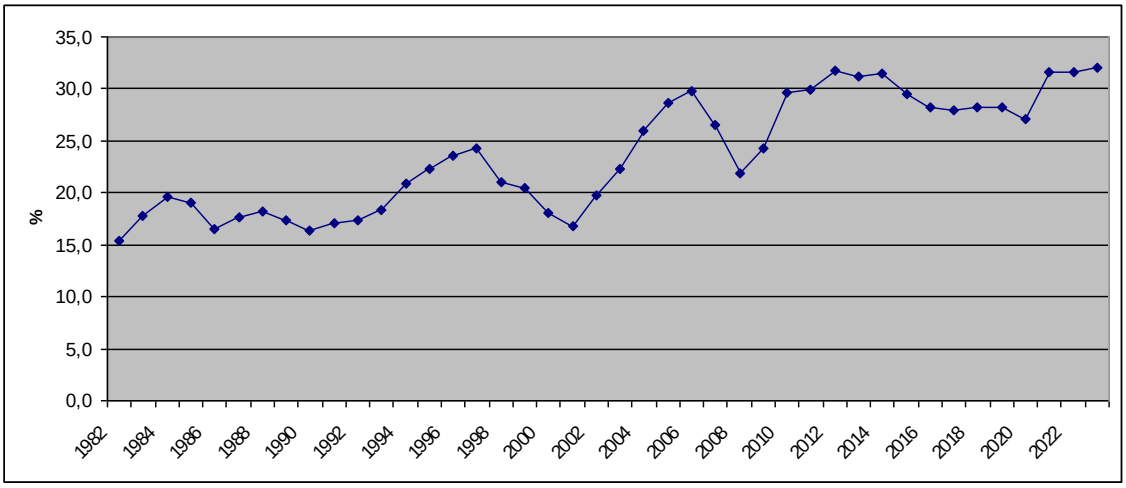
1. Four decades of rising profit rates: some data and discussion

Regardless of the data and methodologies used, it seems agreed that, over the last four decades, there has been a trend toward increasing profit rates. In France, for instance, the trend was registered since 1983 with levels above 32% the mid 1990's (Plihon, 2002: 17-19). Corporate profits in the US are "on average, higher than they have been for decades and seem to be steadily increasing" (Haskel; Westlake, 2018:94).

Profit rates include, as seen above, the rate of labour exploitation whose estimative always depend on proxy data. The US Bureau of Economic Analysis (BEA) provides two data series allowing for a rough overview of the surplus value rate in the USA: "Total wages and salaries" (starting in 1982) and the "Corporate Profits with Inventory Valuation Adjustment (IVA) and Capital Consumption Adjustment".

It should be noted that the wage bill includes wages and salaries, and that salaries of executive managements include profits from stock-based pay (dividends and stock buybacks). The surplus-value rate is therefore underestimated due to this bias and the default error increases in proportion to the extent that this kind of incomes has become increasingly larger (precisely since the mid-1980s). Conversely, the BEA calculation of the rate of surplus value includes an error by excess in the mass of profits it registers (net receipts from "Rest of the World"), as explained below.

Figure 1- Total USA Corporations - Surplus Value Rate (s'): 1982-2024



Sources:

Wages: U.S. BEA, Total wages and salaries, BLS [BA06RC1A027NBEA], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/BA06RC1A027NBEA, July 27, 2025;

Corporate Profits: U.S. BEA, Corporate Profits with Inventory Valuation Adjustment (IVA) and Capital Consumption Adjustment (CCAdj) [CPROFIT], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/CPROFIT, August 20, 2025.

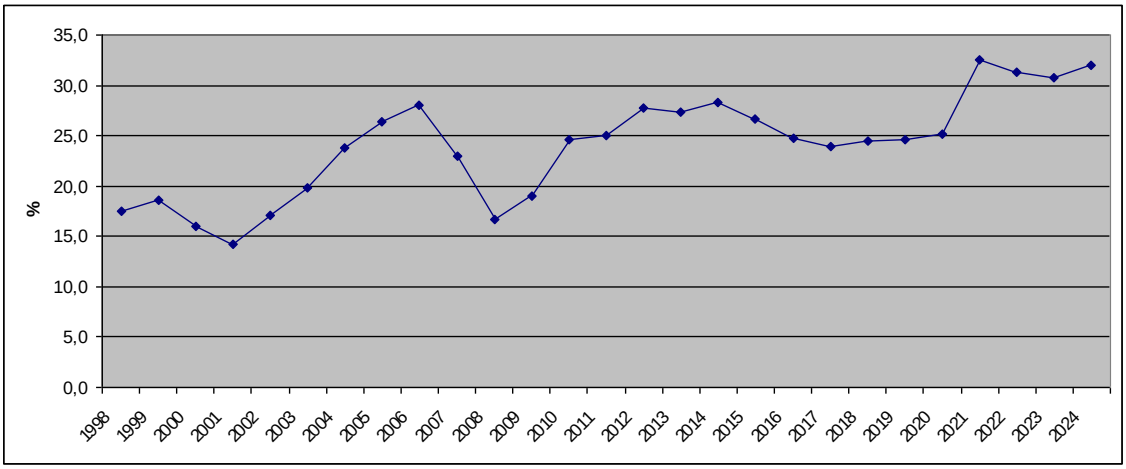
Cycle averages that stand out from this series confirm a rising trend for the surplus value rate since 1982 and especially after 2001: the average rate for the period after 2021 (27.6) is almost 46% higher than that for the period 1982-2001 (18.9).

Time frame is important because there is a growing discussion about the role that US exports of capital and Washington political push for a deregulated world market had in the reversal of the US 1970's profit recession (Harvey, 2005:58-67; Bürbaumer, 2024: 21-65). Leaving aside the fact that much of the literature often describes more than it explains, the question remains as to whether or not there is a correlation between capital exports (which by relocating industries would have weakened the bargaining position of labour) and the rise in the rate of surplus value.

Before testing this possible correlation it may be useful to consider an important breakdown of profit data provided by a later series (from 1998 onwards) published by the BEA. The series breaks down US firms' profits by industry and geographical area of activity, thus making it possible to assess the weighting of profits earned by multinational firms. To obtain a more accurate estimate of the surplus value rate just for domestic industries (financial and non financial) alternative wage data was used: the average wages

by occupation provided by the US Bureau of Labor Statistics (BLS). It allows calculating the US annual wage bill by weighting averages by occupation (total employment, hourly wage rate, average annual wage). This wage series is certainly closer to the actual wage bill because in the category "Management Occupations" (whose numbers varied between 4 and 10 million), it is likely that only base salaries (without dividends or income from stock sales) were recorded.

Figure 2- USA Domestic Industries - Surplus value rate (s'): 1998-2024



Sources:

Wages, U.S. BLS, Occupational Employment and Wage Statistics (OEWS) Tables, https://www.bls.gov/oes/tables.htm:

Domestic Industries Profits, U.S. BEA, "Table 6.16D. Corporate Profits by Industry" (accessed Friday, August 15, 2025)

,https://apps.bea.gov/iTable/?reqid=19&step=3&isuri=1&1921=survey&1903=239&_gl=1*ghr3mg*_ga*ODI0MDY3MzU3LjE3NTEwMjU4MDU.*_ga_J4698JNNFT*czE3NTUyODc4NzQkbzgkZzEkdDE3NTUyODc4OTEkajQzJGwwJGgw#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbIk5JUEFfVGFibGVfTGlzdCIsIjIzOSJdLFsiQ2F0ZWdvcmllcyIsIlN1cnZleSJdLFsiRmlyc3RfWWVhciIsIjE5OTgiXSxbIkxhc3RfWWVhciIsIjIwMjUiXSxbIlNjYWxlIiwiLTkiXSxbIlNlcmllcyIsIkEiXSxbIlNlbGVjdF9hbGxfeWVhcnMiLCIxIl1dfQ

Within the time interval for which they are comparable, the two estimates of the surplus value rate confirm the upward trend. A comparison of the cycle's[6] averages also shows mutual validation (with a discrepancy only in the cycle that began in 2008).

[6] Cycles are considered from bottom to bottom years.

Table 1 – USA Total Corporations and USA Domestic Industries - Surplus Value Rate (s')

Cycle	Total USA Corporations (incl. profits from abroad / wage bill overestimated)	USA Domestic Industries
1982-86	17.7	
1986-2001	19.1	
2001-08	23.9	21.1
2008-20 (2008-17 for Domestic Industries)	28.4	24.4
2020-23 (2017-24 for Domestic Industries)	30.6	28.1

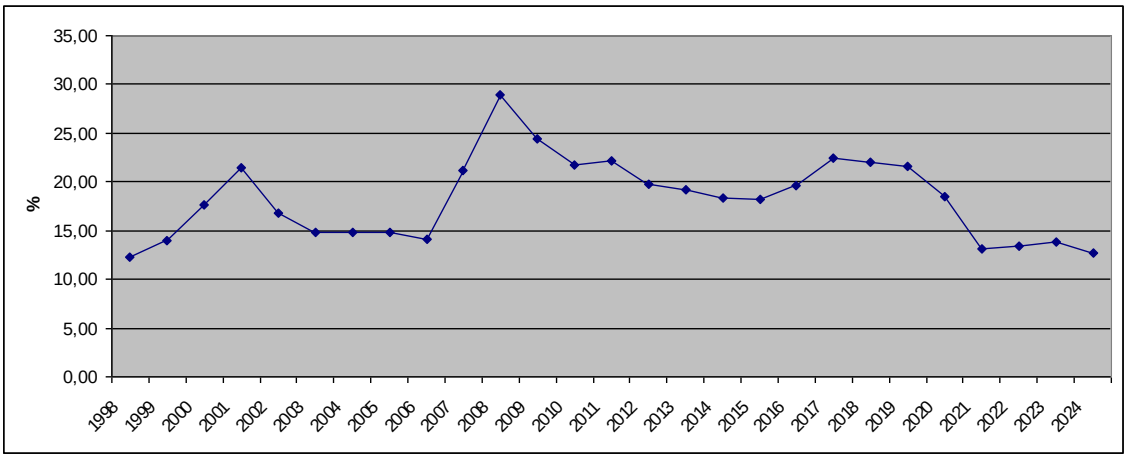
It is worth noting that, in Table 1, the rate of surplus value is not much lower in domestic industries than in the series for total US corporations. But the profits of the latter include the balance received from the "Rest of the World," and, since the overseas wage costs of American multinationals were not included as inputs in the calculation of its surplus value rate, the **s'** averages for "Total American companies" in Figure 1 and Table 1 are overestimated.[7] So, judging by the small differences between the two series of averages in Table 1, it is likely that the rate of surplus value of domestic industries is similar or even higher than that obtained by US companies abroad[8].

It can also be noted that the weighting of net profits received from abroad in the mass of US profits has been falling since 2008 (see Section 2), with a marked decline in the last (incomplete) surplus value rate cycle (2019-24, averaging just 15%). Within such a trend the domestic surplus value rate becomes more significant.

[7] Most wage rates paid in the "rest of the world" by American multinationals are lower than those paid in the US (with the exception of some European countries) but the gap is narrowing. For a comparison with Chinese wage rates, see section 3.3.

[8] This point is confirmed by recent corrections of the accounts of American multinational companies that, for tax reasons, record part of their home operating surplus as if coming from foreign subsidiaries. The rate of surplus value obtained internally is therefore higher because it is estimated that, once the correction is made, the reduction in labor income in US net added value is about 2% (Bruner; Rassier; Ruhl, 2018:25-39)

Figure 3 – USA Profits - Net Receipts from "Rest of the World) / Total Profits: 1998-2024



Sources: See Figure 2

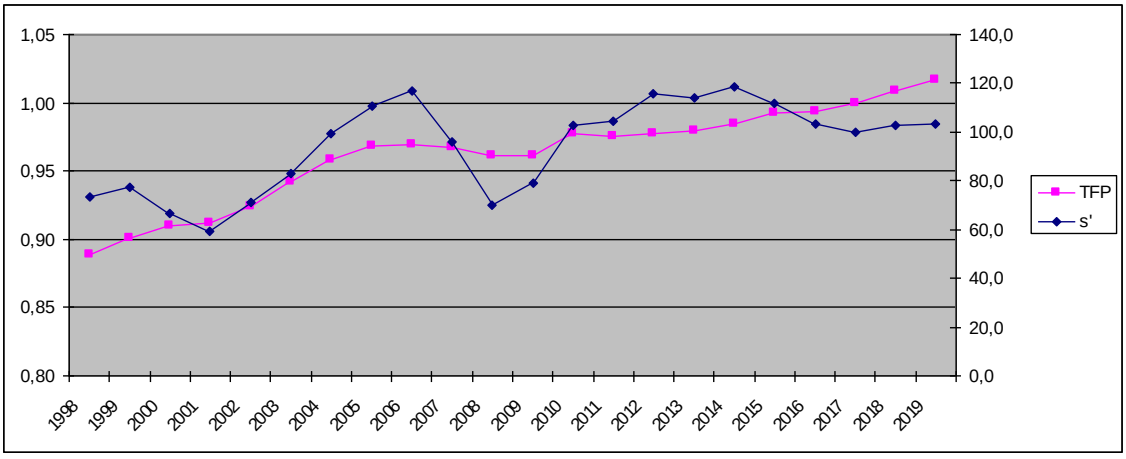
There has certainly been wage compression in the US due to the intensification of capital exports, which, as will be seen, accelerated in the 1990s[9]. Real American wages may also have increased less than European wages for some time[10] but that did not last much. Between 2000 and 2021, the purchasing power of American wages increased by an average of 1.3% per year, more than the OECD aggregate, which stood at 0.9 (Rebière; Lebon, 2024:186). Accepting the consumer price indices from American statistics, between 2001 and 2024 the US real wages are likely to have increased by 3% per year[11]. If in spite of the rise in real wages, the rate of surplus value tends to increase as much or more in US domestic industries than in foreign investments, this is because productivity gains have resulted in a higher rate of labor exploitation. In short, there has been a trend toward an increase in the relative surplus value rate[12] in the US and this is the expected

[9] In 1995, it was estimated that 80% of real hourly wages in the US were 11% lower than in 1973. (Martin; Schuman, 2000:129).
[10] Between 2001 and 2015, the US inflation was 15% higher than in Europe, while American wage increases were only 7% higher (Arquié; Bertin, 2020:66)
[11] Devalued by the inflation rate, the real increases in mean hourly wage and median wage were 3.0% and 2.7%, respectively. Sources: for nominal wages, see Figure 2; for the US inflation rate. World Bank, Inflation, consumer prices for the United States [FPCPITOTLZGUSA], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/FPCPITOTLZGUSA, August 30, 2025.
[12] If working hours remain unchanged, relative surplus value results from a decrease of paid working time (**v**, in the surplus value equation given in foonote 1). This decrease results from productivity increases in activities that produce workers' consumer goods and/or an increase in **s** (greater intensity or complexity of work).

result of the external-circular capital devaluation which continuously lowers the value of the workforce, regardless of whether wages remain the same or increase.

Productivity indicators have been confirming this conclusion for several decades. In the US, manufacturing productivity grew annually by 2.3% between 1970 and 1980 but increased to 3.7% between 1980 and 1988. In the latter period, the corresponding rate for West Germany, one of the main competitors of US industry at the time, was only 2.8% (Krugman, 1997:91). Considering that added value of manufacturing accounts for an increasingly smaller share of US GDP[13], total productivity gains provide a more comprehensive view of performance trends. Fig. 4 compares the average annual gains in Total Factor Productivity (TFP) at constant prices with the surplus value rate of Domestic Industries. TFP takes 2017 as the base year (also the end year of the 2008-17 cycle for the domestic industry's surplus value rate).

Figure 4 – USA: Total Factor Productivity (TFP) and Surplus Value Rate in Domestic Industries (s') : 1998-2019



Sources:

TFP: University of Groningen and University of California, Davis, Total Factor Productivity at Constant National Prices for United States [RTFPNAUSA632NRUG], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/RTFPNAUSA632NRUG, August 21, 2025.

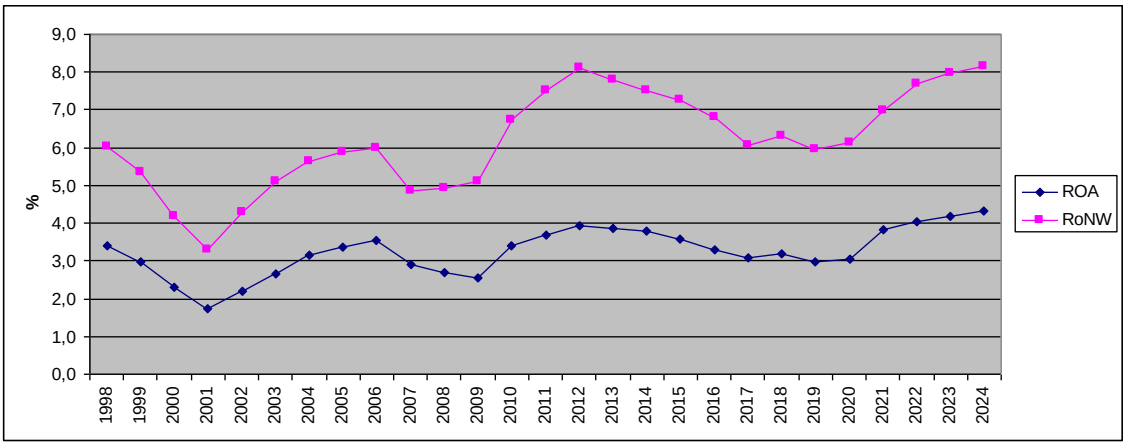
Surplus-value rate (s'): see Figure 2

[13] The added value of manufacturing share has been falling in US GDP albeit less sharply in the last decades: it was 29.6 in 1950; 25 in 1970; 18.4 in 1990; 11,9 in 2010; 10 in 2024 (Krugman, 1997:40; World Bank Group Data, https://data.worldbank.org/indicator/NV.IND.MANF.ZS?end=2024&locations=US&start=1997&view=chart)

The overlay shows a significant correlation[14] and also how productivity gains were distributed: surplus value appropriated them in two cyclical waves after 2001, which is in line with what was expected from the rise and fall of devaluation effects (Santos, 2024). After 2017, average annual productivity gains tripled compared to the previous cycle (0.34 in the three years 2017-19 versus 0.10 in 2008-17). The interruption of the TFP series in 2019 does not allow us to confirm the next wave of surplus appropriation of these gains, as seems to be indicated by the high average of s' in the years 2017-24 (see Table 1).

With capital appropriating almost all productivity gains and these gains reducing the value of the productive assets needed to extract surplus value, the expected result is an increase in the rate of profit (see note 2). For non financial corporations there is available data for evaluating the Return on Assets (ROA) and Return on Net Worth (RoNW) since 1946, which are proxies for the profit rate. The series confirm that the long downward trend in profitability, which had been ongoing since 1965, was reversed in 1986. Given that the BEA only breaks down the profits of domestic non-financial corporations (with inventory valuation and capital consumption adjustments) from 1998 onwards, it is preferable to use this series in order to compare the profit cycles with the surplus-value cycles.

Figure 5 – USA Non Financial Corporations - RoA and RoNW: 1998-2024



Sources:

Profits of Nonfinancial Corporations: see Figure 2

[14] The Pearson correlation for this 22 years series is 0,76690.

Total Assets: Board of Governors of the Federal Reserve System (US), Nonfinancial Corporate Business; Total Assets, Level [TABSNNCB], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/TABSNNCB, August 12, 2025.

Net Worth: Board of Governors of the Federal Reserve System (US), Nonfinancial Corporate Business; Net Worth, Level [TNWMVBSNNCB], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/TNWMVBSNNCB, August 13, 2025.

Table 2 - USA Non Financial Corporations - RoA and RoNW

Cycles	RoA	RoNW
2001-09 (2001-07 for RoNW)	2,8	5,0
2009-19 (2007-19 for RoNW)	3,4	6,5
2019-24	3,7	7,2

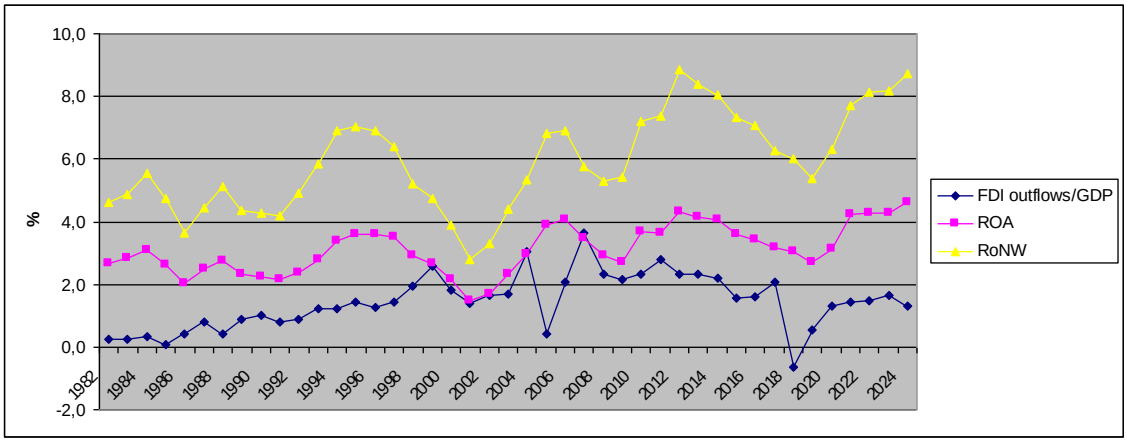
The upward trend of the profit rate and its major cycles confirm the cycles of the surplus vale rate (Table 1). Having established a correlation between profits and capital devaluation, section 2 focuses on the relationship between profits and capital exports.

2. Capital exports and a rising rate of profit – the limits of the "devaluer"

How much of the US surplus was transferred abroad, and what relationship can be established between foreign investments and the profitability of US companies? According to the World Bank, the accumulated surplus transferred from the US since 1982 totalled $8.645 trillion. The annual average for the period between 1982 (the year from which profitability was calculated in the previous section) and 2001 was "only" $80 billion. After 2001, the annual average more than tripled to around $300 billion. To better understand what these orders of magnitude mean, it can be said that, as a percentage of US GDP, the fraction of surplus invested abroad increased 43-fold between 1985 and

2007 (from 0.1 to 3.3%). These impressive figures are certainly related to the efforts of the US government and multinational companies to open the world markets since World War II. As is well known, the most intense phase of this opening took place after the mid-1980s. Many studies have already highlighted its importance for the reversal of the falling profitability rates and one figure is enough to show it.

Figure 6 – USA – Foreign Direct investment / GDP and Profitability (RoA and RoNW): 1982-2024



Sources:

FDI, net outflows: World Bank Group Data, Foreign direct investment, net outflows (BoP, current US$) - United States https://data.worldbank.org/indicator/BM.KLT.DINV.CD.WD?locations=US&name_desc=true

GDP: U.S. BEA, Gross Domestic Product [GDPA], retrieved from FRED,Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/GDPA, August 9, 2025, https://fred.stlouisfed.org/series/GDPA

RoA and RoNW: U.S. BEA, Nonfinancial corporate business: Profits before tax (without IVA and CCAdj) [A464RC1A027NBEA], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/A464RC1A027NBEA, August 12, 2025

Profitability increases followed the leaps in US capital exports (not including reinvested profits) but the series present a weak correlation. The divergence of trends is more evident after 2007, when the share of the surplus invested abroad tends to decline, while profitability, already on the rise since 2001, keeps increasing and especially after 2019 (for the profit averages of non financial corporations, see table 2).

Table 3 – USA - Foreign Direct Investment as % of GDP: 2001-2024

Cycles	FDI / GDP
2001-05	1,6
2005-18	1,9
2018-2024	1,0

Before going into explanatory details, it should be noted that if the main conclusion of section 1 is that less and less capital is needed to produce one unit of surplus value, then the relative decline in FDI shown in Figure 6, which is part of total investment, is a likely outcome[15]. The devaluation of capital means savings in direct labor at virtually every point of innovation, and then external and circular devaluation frees up capital as it progresses. The expanded reproduction of capital thus becomes increasingly difficult as the devaluation of capital drains labor demand and reduces the costs of surplus value production. If there were doubts about whether the decline in investment corresponds to profits not reinvested and released for other purposes, the relative growth in dividends and stock buybacks registered by so many large US companies are enlightening. Some of them show profit distribution percentages that, from 2008 onwards, even exceed net income by 100%, i.e., corporations go into debt to redistribute profits! (Lazonick; Shin, 2020:77-78). For the bourgeois economy alone, it remains a major problem to explain the downward trend in investment since the 1990s, all the more considering that it was accompanied by a similar trend in interest rates (Haskel; Westlake, 2018:92-93). It can only be said that, since FDI is an investment flow associated with higher profit expectations, its downward trend should have been less pronounced than that of total investment. For now, FDI can be used as a proxy of total investment.

At his point it may be helpful to list the three basic factors usually mentioned in the links between foreign investment (FDI) and profitability. The later is said to increase because FDI:

- expands the scale of production (by reducing the gap between actual and potential profits it lowers the unit costs);

[15] The price of investment goods has been declining relative to the price of consumption in the U.S. "Between 1947 and 2016, the relative price of investment goods fell by almost 78%" (The Fred Blog, 2019)

- makes a cheaper workforce available (wherever, *coeteris paribus*, it produces a higher rates of surplus value[16]);
- saves capital by outsourcing a larger part of the value chain.

Such a combination of factors should not be considered mechanically because if the qualitative changes that FDI has undergone in recent decades are not taken into account they just contradict each other. For example, the increase in scale involved in larger exports or the opening of branches abroad (as the American multinational corporations did in Europe in the 1950s and 1960s) has been increasingly counteracted by the outsourcing and downsizing that large American companies have undertaken since the 1980s. Furthermore, the benefits of savings of variable capital (lower wages abroad) count for less and less in the profit rate, since the technical composition of capital (reducing the amount of labor employed) increases more than proportionally.

The main qualitative changes in FDI relate to the third factor, savings in total capital, which holds the key to understanding the dialectic of the other two. Although outsourcing/downsizing is associated with a decrease in direct billing, it can still benefit from economies of scale but only if the capital/output ratio is reduced in the retained core-activities. What has meanwhile changed? By the time fixed costs corresponding to material equipment had a high weighting in the advanced productive capital, variations in scale had a strong impact on unit costs. This was one of the main contradictions of big business when it was correctly described by Baran and Sweezy. But with capital devaluation, the depreciation of tangible fixed assets counts for less and less. In the United States, intangible investment has accounted for the majority of assets since the mid-1990s, and a similar trend is affecting European capital (Haskel; Westlake, 2028:24-25). In the outsourcing that large companies began in the 1990s the reduction of fixed costs was not their main goal. So why was it done, and why did it largely coincide with the growth of capital exports?

First of all, outsourcing has several advantages and it does not necessarily coincide to capital exports. Like Adam Smith's pin manufacturers did it within their own doors, it can be done among domestic companies and still achieve lower costs. Eastman-Kodak did it

[16] The rate of surplus value only increases as a result of lower wages if the surplus extracted (in terms of duration, intensity, and productivity of working time) does not decrease proportionally more. Otherwise, FDI would go exclusively to the low-wage areas, such as Africa, for example.

in 1989 when it outsourced its information technology systems to IBM[17]. In doing so, the associated companies divided among themselves the surplus value differentials resulting from the higher productivity/intensity arising from hyper-specialization[18].

But outsourcing and international value chains started a strong association in the 1990's mainly because international outsourcing also provides an unpaid organic composition of labor. The organic composition of labor (Emmanuel, 1974:126-133) is an expression that relates training costs (implicit in higher qualifications) of a workforce to the value it produces. If the weight of direct highly-skilled labor increases in the value of the product, then employing a workforce that, for equal work intensity and productivity, has much lower costs than in the United States, cannot fail to increase the rate of surplus value[19]. As international competition forces multinational companies - and even more so their subcontractors - to transfer only a fraction of the extra surplus value that comes from employing complex skilled labour at low cost prices to the invoiced price, international outsourcing also contributes to accelerating the decline in the price of inputs.

Thus the international outsourcing tide of the last decades boomed the external-circular devaluation effect, which saved/released increasing masses of capital. Capital devaluation increases directly with the number of integrated fractions conveying the labour-saving effects of innovations[20], which means that the longer the value chain, the greater the increase in the average profit rate that will result from an initial devaluation.

For example, suppose the impact of a cost-saving innovation in a total capital (national or international) of 281.3 million (US$ or €), composed of 4 unequal fractions although with the same technical composition, as shown in the diagram D1. Out of this total capital, only 3 fractions (say, parent company[21] plus subsidiaries, subcontractors or suppliers) participate in cross purchases. In the real world (see section 3), the rates of surplus value

[17] IBM soon started to outsource even core-activities such as Information Technology and "Human Resources".

[18] For a description of how surplus labour is shared with the provider: "The provider has become an integral part of their production team and has formal KPIs,[key performance indicators] production goals and standards. In essence, this has moved to a pure-play, "company within a company" model, bring the best in off-shoring manufacturing within the tight control and four walls. (NC State University, 2006).

[19] "Unlike big corporations from the past", US multinationals that exploit skilled labour in India or Taiwan, create "low wage and low-quality jobs" (Rikap, C. & Lundvall, B-Å. (2022: 22)

[20] For the present discussion, it is irrelevant to distinguish what type of labor-saving innovations are involved: product innovations, process innovations, or instrument innovations (Kleinknecht, 1987:64).

[21] The figures in the diagrams are intended solely to facilitate reasoning but are not entirely out of line with reality. A company "A" with profits in the order of USD 50 million could be, for example, Exxon Mobil.

certainly differ from fraction to fraction and also over time as capital devaluation affect the production of goods entering into the composition of variable capital (wages). But here, to simplify the outline, consider that that the cost-saving innovation just affects the production of intermediate goods (of **c**, constant capital), and that all capitals produce at the same surplus value rate (100%). Before the innovation the initial capital turnover[22] would be as follows:

D1

Company	c	v	Total capital
A – selling inputs **c** to B	100	50	150
B – buying inputs **c** from A; selling inputs **c** to C	50	25	75
C – buying inputs **c** from B	25	12.5	37.5
D – not integrated in the market of A,B,C	12.5	6.25	18.75
Total	**187.5**	**93.8**	**281.3**

Suppose now an innovation starting in A, which, by increasing the used constant capital by 10%, allows its direct labor to be reduced by 50%. Assuming an invariable rate of surplus value, A can now decrease **v** to 25. If A was producing 200 units, the unit price of its output will fall by 20%[23]. If B was producing 100 units, B buys now its inputs **c** from A at the new production prices of the latter and the unit value of B's output decreases by 10%[24]. If C was producing 50 units and buys its inputs **c** at B's new unit price, its own unit price will decrease by 5%. In this way, the cost-saving effect that generates new cost production prices spreads successively throughout the value chain. After all *integrated* fractions have their unit costs reduced, capital savings cause total capital turnover to

[22] The monetary units in the scheme of section 2 and 3 represent value relationships (materialized social labor) rather than market prices. In the diagrams of this section the turnover of fixed assets is not considered.
[23] Before the innovation, if Q (physical units produced by A) is 200, its unit value = (100c + 50v + 50s) /Q = 1. After the innovation, the unit value of an unchanged Q is = (110c + 25v + 25s) /Q, = 0,8.
[24] Before the innovation, if Q (physical units produced by B) is 100, its unit value = (50c + 25v + 25s) /Q = 1. After the innovation, the unit value of an unchanged Q is = (50 c units x 0,8) + 25v + 25s) /Q, = 0,9. In capitals with equal technical composition, chain purchasing of lower-value inputs results in the same decreasing percentages of devaluation regardless of the size of the capital fractions (i.e., in this example, the progression of devaluation is the same whether the capital of B and C is less than, equal to, or greater than A).

decrease to $253.8 million (not counting the circular effect on A)[25]. Diagram D2 shows these changes and that at the end of the first complete rotation of total capital after the innovation, 9.8% of the initial total capital was saved (the arithmetic signs in parentheses compare the values shown in the same column of diagram D1):

D 2

Company	c	v	Total capital
A – selling inputs **c** to B	110 (+)	25 (-)	135 (-)
B – buying inputs **c** from A; selling inputs **c** to C	40 (-)	25 (=)	65 (-)
C – buying inputs **c** from B	22.5 (-)	12.5 (=)	35 (-)
D – not integrated in the market of A,B,C	12.5 (=)	6.25 (=)	18.75 (=)
Total	**185 (-)**	**68,8 (-)**	**253.8 (-)**

If fraction D had already integrated the market of the other three in the first capital rotation it would have bought its inputs **c** from C. Diagram D3 shows that in that case the total capital turnover would amount to $253.1 million, which is an additional saving of 0.25% of the total working capital of D2.

D3

Company	c	v	Total capital
A – selling inputs **c** to B	110 (+)	25 (-)	135 (-)
B – buying inputs **c** from A; selling inputs **c** to C	40 (-)	25 (=)	65 (-)
C – buying inputs **c** from B; selling inputs **c** to D	22.5 (-)	12.5 (=)	35 (-)
D – buying inputs **c** from C	11.9 (-)	6.25 (=)	18.13 (-)
Total	**172.5 (-)**	**62.5 (-)**	**253.1 (-)**

The devaluation of capital resulting from the cross-purchasing of lower-cost inputs that circulate after a cost-saving innovation (the external-circular devaluation of capital) has been present throughout the history of the capitalist mode of production. This synergistic effect occurs because, for the process to begin, all that is needed is for *one* innovative

[25]External devaluation follows a circular path, as it alters the value composition of all capital fractions that buy from each other, including that of the innovation-starter. To simplify the explanation, this circular effect is omitted here.

capital fraction to alter its technology, i.e., its technical composition (the relationship between materialized labor and direct living labor)[26]. When this "internal" change results in the production of a cheaper input, whether in the production of means of production or consumer goods, all capital fractions that buy it alter *their value composition, but not their technical composition.* This means that in downstream buying fractions, *caeteris paribus*, the cumulative effect of capital devaluation (savings) acts in direct proportion to the social division of labor and that no other "internal" innovations are necessary to convey the initial devaluation[27].

It was with the *international* outsourcing (and their higher surplus value rates) of the last 40 years that the lengthening of cross-purchasing chains experienced unprecedented growth. Today, some final products are being segmented into hundreds or thousands of component suppliers (capital fractions). The French firm Renault, for example, has about 17,000. One way to see how product segmentation has multiplied in *international* investment is to compare the number of stages a product goes through before final consumption (*upstreamness*). Between 1995 and 2014 while the increase in distance in national chains averaged 6%, it reached 70% in international chains. Greater efficiency of data processing (brought by ICT[28] developments), made possible and cheaper to coordinate the complex logistics involved in the international social division of labor (Jean; Reshef; Santoni, 2020: 27-30).

If the positive effects of outsourcing in capital devaluation are well known, with or without capital exports, why has there been a relative decline in US FDI since 2007? The key issue, as always in capitalist production, is the rate of profit. Capital devaluation that results from cross-purchases of cheaper inputs soon find their limits when it transfers the value of *one* initial saving: like the Keynesian multiplier, the "devaluer" is exhausted in

[26] If an external change in the composition of the value of downstream fractions requires only *a single* upstream innovation, in the real movement there is a pull-demand effect. Innovations are incorporated simultaneously, upstream and downstream. The rise of automobile industry brought "powerful side effects" in petroleum refining, rubber tyres and metal working (Kleinknecht, 1987: 116-117). Such upstream innovations then triggered external devaluations of the value composition of capital in the automobile industry.

[27] External devaluation, which results in a potential difference between the composition of value and the technical composition of capital, has been relatively neglected in labor theory of value. For instance, Magaline (1975: 93 – footnote 5) identified the organic composition of capital with the "internal" process of labor (the technical composition of capital).

[28] Information and Communication Technologies, i.e., not only the internet but also all related communication devices – personal computers, software, iphones, etc.)

a variable number of cycles[29]. The decreasing variations in capital costs become smaller and smaller until they stagnate (Santos: 2024)[30]. As variations in capital saving tend towards zero, *ceteris paribus*, those in the rate of profit also tend towards zero. Before reaching total stagnation in profit rates, the recessionary phase stimulates the next phase of innovation/devaluation.

The mass of capital is also a factor of the external-circular devaluation. The effect of cross-devaluation varies inversely with the total capital. The greater the mass of capital affected by devaluation, the lower the percent change of capital devaluation from rotation ago. Even discounting the fact that not all capital exports integrate value chains, the saturation point of several of many of them is likely to be rapidly reached considering how fast they grew: the world FDI stock, which represented 10% of GDP in 1990, was 40% in 2019 (Jean; Reshef; Santoni, 2020: 26).

How have profit rates, which drive and are driven by foreign investment, been reflecting the external-circular devaluation cycles? During the recessionary phase of the last full cycle of US profit rate (a cycle within an upward trend), the decline in profit rates and in the FDI share in GDP (here a cycle within an downward trend) occurred in different proportions: between 2012 and 2019 RoA fell at an annual rate of -6.5, RoNW at -6.8, but the FDI share at -18.9 (see Figure 6).

It is still unclear to what extent the series of profit rate indicators are due to the exhaustion of "devaluers," and problems remain in measuring the timing of the impact of productivity on the profit rate. A recent study showed that the contribution to labor productivity of the US top 20 firms (the "star companies", as the authors called them) declined by 40% since 2000 (Gutierrez; Philipon, 2019: 314). Assuming that most of the initial innovations originated in the "star companies" (independently of how they introduced it into the value chains they control)[31], a comparison of the major innovation

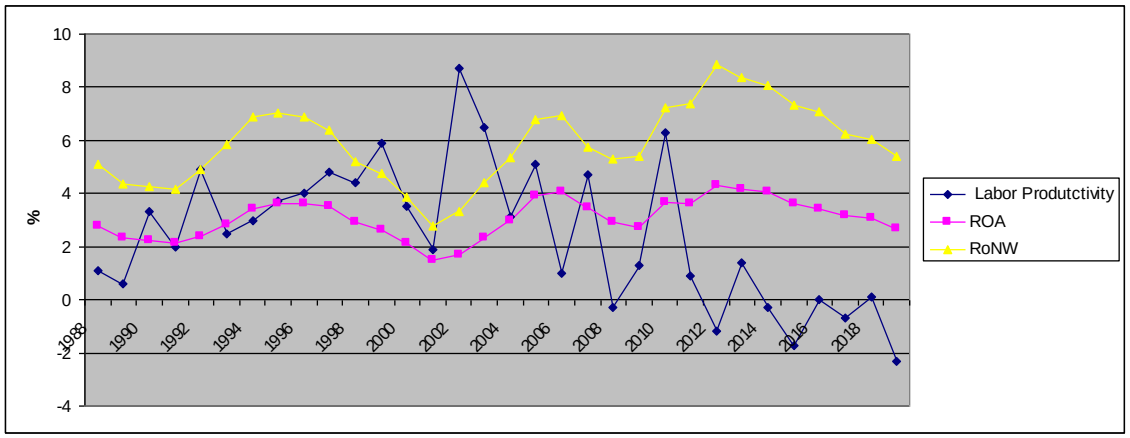
[29] The diagrams D1 to D3 represent what happens in the wake of *one* undifferentiated innovation but in real world the external capital devaluation is based on thousands of simultaneous innovations and several of them in the same capital sector, as seen in footnote 26. For example, just for the period 1953-73 a total of 1,160 innovations with "significant technological change" was selected by a panel of experts (Kleinknecht, 1987:133). For the last 20 years the total would certainly be much higher.

[30] A parallel can be drawn between the decreasing cumulative effects of the external-circular capital devaluation and the introduction of innovations; "In the longer run, these improvement and process innovations are assumed to be governed by the law of diminishing returns on further improvement efforts." (Kleinknecht, 1987:57).

[31] For a discussion on how leader corporations draw knowledge and innovative procedures from their own partners in the value chain as well from open sources, see Rikap, C. & Lundvall, B-Å., 2022:9; 16-17.

peaks with those of changes in US industrial productivity suggests a lag of between 2 and 5 years[32]. Between changes in industrial productivity and those in profit rates, a similar time lag seems plausible. If so, a major innovation bunch such as ICT during the 1990's[33] would take between 4 and 10 years to start a new cycle of profits.

Figure 7 – USA - Labor Productivity (Percent Change from Year Ago in the Manufacturing Sector) and Profit Rate (RoA and RoNW): 1988-2019



Sources:

Labor Productivity (Percent Change from year ago): U.S. Bureau of Labor Statistics, Manufacturing Sector: Labor Productivity [MPU9900063], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/MPU9900063,August13,2025.

RoA and RoNW: see Figure 6

The inaccuracy of these conclusions is easily seen: not all peaks in productivity changes resulted in peaks in profitability and besides the profit rate indicators (RoA and RoNW) do not only refer to industrial firms. But the major flaw is that prior to 2019 there does not appear to have been a reversal in the decline in productivity, which should have preceded the expansion in the rate of profit after 2019. Where did the profit boom come from? In short, what we know about the relationship between innovation and profits in

[32] The gap was certainly greater in previous decades. In 1987, Solow could say that the impact of computers was "everywhere except in productivity statistics." It was a problem of measurement, but also of time lag. Solow, 1987, http://digamo.free.fr/solow87.pdf

[33] Internet was launched in 1989 and Microsoft started selling Windows 3.11(which made it possible for users to access the World Wide Web without MS-DOS programming) in 1992 (Rebière; Lebon, 2024: 162).

previous decades is of little use in predicting what the next ones will be like, except that the times of interaction between the variables tend to shorten.

Section 3 aims to contribute to this discussion, but for now it is important to point out another factor that, in addition to the time lags between technological waves and variations in profit rates, contributes to the deviation of foreign investment series from the US profit rate. The US rising surplus value rate is reducing the advantages of external cross-devaluation *through FDI*. As both domestic and international outsourcing, advances, US labor loses bargaining power, both in plants and in courts[34]. This unfavorable correlation of forces is an additional factor contributing to the high rate of surplus value extracted from the American working class, as already described in section 1. As a manufacturer company executive put it:

- *Contract labor force is a highly appealing model. We will need to outsource molding and assembly to a non-union workforce to be competitive. Outsourcing to low cost countries is not feasible, as the long lead-times associated with this process are unacceptable, so the work needs to be done locally. The only solution is to have a local non-union workforce do the work. To facilitate this, we have established processes to train workers in constraints management, and have located HR people on the floor*. (NC State University, 2006, underlining not in the original text)

In fact, although the US is the largest exporter of capital, the integration of imported components into its value chains has been increasing less than in other major economies: in 2014, its share was just 7.1%, while Germany's was 15.7% and French industry's was 30% (Jean; Reshef; Santoni, 2020: 37-39). The lower internationalization of the US value chain may confirm that, compared to its EU competitors, its *domestic* outsourcing tends to produce equal or higher rates of surplus value than the international one (see Section 1).

Shortly, section 2 has certainly overused numbers but has still not fully explained how US FDI may be framed in the cycles of the profit rate, as far as these have been determined

[34] In 2018, in the case *Epic Systems Corp. versus Lewis*, the US Supreme Court ruled that mandatory arbitration (which undermines collective union action) did not violate previous legislation, namely the National Labor Relations Act of 1935 (Rebière, Lebon, 2024: 177)

by the capital devaluation effect. This question leads us to the dynamics of international competition between capitals, known for over a century as imperialism.

3. Capital accumulation and imperialism today

When external-circular capital devaluation circulates all capitals benefit. No wonder that for the bourgeois economy of the 1990s the major real threat was still a threat to free trade[35]. But if everyone wins, some win more than others. In the distribution of a given amount of profits, as in the distribution of added value between wages and surplus value, there is always a zero-sum game: some win what others lose.

The value chains established by companies that have moved to outsourcing are hierarchical: whoever owns the the final design of the product to be segmented and organizes the network selects its partners and sets profit margins. In the case of international outsourcing or the simple supply of imported components, access to end consumer markets provides extra power to the firm responsible for the network (Bürbaumer, 2024:61). Thus, there is no equalization of profits among the capitals participating in an international value chain. As more than half of global output is currently organized in this way (the 500 largest multinationals alone accounted for nearly 38% of world output in 2024)[36], the global mass of surplus value is, as it always has been but now increasingly so, unevenly distributed.

If, in the labor theory of value, profit results from unpaid labor, what reasons could lead company A of the diagram of section 2 to introduce an innovation that *saves* direct labor? The answer is well known for a long time:

> *No capitalist will introduce a new method of production, regardless of the extent to which it increases labor productivity or surplus value, if it reduces the rate of*

[35] Free trade and worldwide capital exports was "the most promising aspect of the current world economy: the beginning of widespread economic development, of hopes for decent living standards for hundreds of millions, including billions, of human beings" (Krugman, 1997: 65).

[36] For the aggregate revenue of the the 2025 Fortune Global 500 list, PRNewswire, https://www.prnewswire.com/news-releases/fortune-announces-2025-fortune-global-500-list-302515397.html. For the World GDP in current US$, World Bank Group Data.

> *profit. But all new modes of production of this type lower the price of goods. At first, the capitalist will sell them above the price of production, perhaps even above their value. He will pocket the difference between the costs of producing his goods and the market price of other goods whose production costs are higher. He can do this because the average social labor time required to produce his goods is higher than the labor time required by the new means of production.* (Marx, 1977: III, 257).

So, as long as competition allows it, company A will use the new technology to sells its goods above their individual cost price. The moneyed difference, corresponding to an excess profit (above what it previously obtained before the innovation), can be called super-profit.

Another major issue remains to be explained. The establishment of a reliable link between innovation and the capitalist cycle is a very complex issue and so goes much beyond the objective of this paper. In section 2, an attempt was made to estimate the time it took for bunches of innovations to be implemented and then exhaust its productivity gains, with the respective effects on the profit rate. But even if the full sequence of the devaluation cycle were measured (which it obviously was not), another important question would still remain unanswered: how long does it take to *generate* major innovations? This point must inevitably be addressed here, even if only as a basic problem of late capitalism to be developed.

There is sufficient historical information to know that major innovations are linked to significant changes in capital accumulation. When successfully applied, innovations[37] tend to render processes and equipment obsolete and promote a rapid reconfiguration of capital. The fact that most of the successful ones enable super profits does not mean that innovative capacity is an independent variable and that the rate of profit is dependent on "erratic leaps" in science or applied science. In capitalism, research has long been a mixed capital investment (public and private) which, like all others, is regulated by movements in the rate of profit. For decades R&D activity has been channelled into areas where the

[37] In Mensch' typology, these major innovations are called basic innovations and include product innovations (television, penicillin, xerography, helicopters, personal computers) and process innovations (catalytic petrol cracking or chips that mimic the human brain such as Intel's Loihi or IBM's TrueNorth). For a discussion of innovation typologies, see Kleinknecht, 1987.

balance between risks and successes is most favorable. Research bound to explore new possibilities is expected only when "R&D investments in the established trajectories become increasingly unattractive" (Kleinknecht, 1987: 1119-20).

The political economy of the 19th and 20th centuries, confirmed by the important statistical studies by Mensch and Kleinknecht, usually associates the genesis of innovation with the final stage of recessive phases, which may extend into the beginning of expansionary phases. If capital savings are accelerating (mitigating and shortening recessions within an upward trend in profits), can the next recessive phases still be framed within the innovation wave pattern? Apparently yes: the small "ice age" in US profit rates between 2012 and 2019 (see Figure 6) was still sufficient for the implementation of innovations that in the following years rapidly reversed it. Yet the full cycle (innovation-productivity changes-profit rate changes) was much shorter. Why is the current accumulation of capital creating conditions for innovation and the cashing of super profits to become increasingly closer in time?

3.1. Capital accumulation: today's changes

To try to clarify what recent changes in accumulation consist of and how competition for super profits is altering their magnitudes and cycles, it may be useful to begin with some notions developed by modern literature on innovation. In doing so, this subsection aims only to show the dialectical relationship between innovation and capital accumulation, without attempting to periodize or describe historical phenomena.

During the long phase of profit recession, which lasted from the late 1960s to the mid-1980s, the reconfiguration of capital was linked to the slow emergence of a new "general-purpose technology" (GPT), the microprocessor. Like the steam engine or the electric motor, the micro processor is a GPT because it had the "potential to significantly increase productivity or quality in a large number of fields or sectors" (Cokburn; Henderson; Stern, 2018:5-6). In the United States, its impact in the capital market started in 1971 when NASDAQ, a specific stock exchange for innovation, led to the organization of a new

highly concentrated sector: the so-called "big tech" companies[38]. In 1979, even pension-fund money was authorized to invest in venture-capital and in the next decades provided "independent venture-capital partnerships up to 59 percent of its funds (Lazonik; Shin, 2020:57). New ICT companies such as semiconductor manufacturers (Intel, Cisco, Sun Microsystem), software companies (Apple, Google, Microsoft) emerged meteorically, both in size and market value. Older ones like IBM or Motorola went into deep reorganization and started outsourcing, as seen above. During the 1990's ITC products (with corresponding super profits for the companies that launched them) created new social needs at a supply cost that was falling (as a result of the "normalization of super profits and external-circular devaluation)[39]. The commercial application of fundamental innovations continued and sustained the profit boom in the decade immediately following the crash of 2001. It is plausible that the exhaustion of external devaluations derived from GPT microprocessor-innovation occurred at the turn of the 2010s.

Meanwhile ITCs began to produce data exponentially[40] which in the post-2012 recession led to another qualitative leap of greater magnitude: the fast development of machine learning, the so called Artificial Inteligence (AI). Considering just scientific publications, this came as an expected sequence of recession-product innovation. After 2009 a "steady increase" in the deep learning publications relative to robotics and symbolic systems took place. It was only after 2012-13 that the United States caught up in this area (Cokburn; Henderson; Stern, 2018:7; 20) and the first products came to the market[41]. AI has the character of a GPT but with a *qualitative* change: it is not just an invention of general application, but the "invention of a method of inventing" (IMI). There are reasons to believe that AI's ability to automate invention is a key to explaining the shortening of the

[38] The NASDAQ was instrumental in diverting capital to intangible assets, such as the expanding IT sector. It was necessary to capitalize it through the issuance of shares because commercial banks did not risk financing companies without fixed mortgageable assets (Haskel; Westlake, 2018).

[39] As Griliches said: "The economy is moving along, so the diffusion is not only a one-way demand curve for technology, but also a supply curve for technology. This is an area where to some extent supply creates demand." (Krueger; Taylor, 2000: 181).

[40] Some examples of commercial applications providing data accumulation: Google Search (1998) , content platforms such as Blogger (1999), WordPress, (2003), social networks as Linkedin (2003), Facebook (2004), Twitter (206), e-commerce as Amazon (1995), Paypal (1998), BitCoin (2008), etc.

[41] A first commercial result was image recognition. Professor Fei-Fei Li's scientific project was launched in 2009, but it was not until 2012 that Alex Krizhevsky's AlexNet neural network began to generate revenue with convolutional neural networks (CNNs).

innovative sequence in the capital accumulation cycle and, at the same time, the intensification of the contradictions generated therein.

AI began in the 1970's with numerically controlled machines but "innovations in robotics are not, generally speaking, IMIs". As Cockburn and his co-authors explain, robots contribute to the depletion of living labor in almost all productive sectors (agriculture, industry, and services) but remain instruments for local use, with interaction limited to the environment for which they were built. Instead, recent developments in machine learning allow machines to make specific predictions (physical or logical) using specific inputs and "calibrated algorithms". The algorithms introduced analyze the deviation of the prediction from reality, and thus the machines learn as data is fed into them (Cokburn; Henderson; Stern, 2018:7; 10-11).

Regardless of its revolutionary impact, AI is in line with what other revolutionary GPTs did before: the devaluation of fixed and variable capital. Unit costs, which for Baran and Sweezy stem both from innovations and from increases in the scale of production, is accelerated by AI through the almost full dematerialization of fixed assets. When fixed capital assets are entirely tangible, there are more or less rigid limits to scale of output and obsolescence: one cannot produce eternally, infinitely or whatever output with the same equipment. But once *intangible* AI-fixed assets have been amortized, depreciation no longer coincides with any physical obsolescence and the relationship between the equipment and how much and what it produces remains completely open. What prevents equipments based on amortized algorithms from continuing to produce for free and to change themselves to perform new tasks, except competition from a better algorithm? A simple example may be used to make this point clear. Diagram D4 shows that in year 1 company X, whose depreciation rate corresponds, say, to 20% of the value of its tangible fixed assets, has the following organic composition of capital and turnover:

D4

A. Total Fixed Capital	B. Depreciation Rate (20%)	C. Variable Capital	D. Surplus Value	E. Total Capital = A+C	F. Output (Physical Units)	G. Production Price per unit = (B+C+D)/F	H. Rate of Profit = D/(A+C)
500	100	50	50	550	200	1.0	9.1

Suppose now that company X develops or acquires production equipment working on algorithms designed for flexible automation, enabling mixed-volume environments with product changeovers. It replaces its old fixed capital (although at 50% higher acquisition cost) and reduces its wage bill by 80% (employing now just staff for setup and reprogramming). If Company X continued to depreciate fixed assets at the same rate and produced on the same scale, the results of such a change would immediately lower its rate of profit. But with fixed assets now mostly intangible and automatically reproducible that can produce on any scale, what will happen if the output triples and is sold, for example, at 0.6 (i.e., 100% above its new unit value but 40% below its sale price before the implementation of the new equipment – see column G of D4)? Diagram 5 summarises this possibility:

D5

A. Total Fixed Capital	B. Depreciation Rate (20%)	C. Variable Capital	D. Surplus Value (produced)	D1. Surplus Value (appropriated) = (F*0.6) - B-C	E. Total Capital = A+C	F. Output (Physical Units)	G. Production Price per unit $= \frac{(B+C+D)}{F}$	H. Rate of Profit = $\frac{D1}{(A+C)}$
750	150	10	10	200	760	600	0.3	26.3

With the IA-dematerialization of fixed costs[42], variations in profit margins remain directly proportional to those in sales, but less so to costs determined by fixed capital. For

[42] Unlike a tangible fixed asset (such as a machine or a truck) which can not operate but in one place at one time, intangible ones can be used at the same time everywhere: in all branches of the same company, leased to customers, etc) without any additional cost. That is what Haskell and Westlake (2018:65-67) call *scalability*, which applies to all the non material components of production (patents, trademarks, copyrights, etc. But with AI there is a coming difference. Pre-AI intangibles were generally mono-oriented toward a specific function (a scanner can scan many things but can only scan). The new dematerialized fixed assets

company X, the organic composition of capital changed when the intelligent automation system was implemented. Afterward it maintains its technical composition regardless of changes in scale: whatever physical volume is now produced, the same living labor keeps operating with the same dead labor[43]. Expectations of super profits of this kind (and higher when the algorithm costs becomes fully amortised) *in which the amount of surplus value appropriated can exceed without internal limits that of the surplus labor actually produced by its workers*, are associated with the advent of AI. The correlation between the stock market value of US firms (that is their anticipated profits) and their R&D spending and patents was already established as early as 2005 (Haskel; Westlake, 2018:105-106).

As the devaluation of fixed capital is accompanied by that of variable capital[44], the trend of an increasing rate of profit is inevitably consolidated as the AI effects expand through external-circular devaluation.

Physically, intangible fixed capital has no expiration date and can be very quickly implemented (which explains the shortening of the interval between innovation and profitability referred at the end of section 2). If companies' resistance to asset replacement usually varies with the share of capital not yet amortized, the ongoing dematerialization of fixed capital makes them more open to changes in fixed capital (the dematerialization of assets accelerates productive revolutions). If the exchange value has increasingly shorter terms[45], its profitability require the highest possible demand in the shortest possible time. Briefly, intangible capital intensifies the quest for the control of world

operated by machine learning are not only intangible assets in themselves (licenses that can be traded like others before), but also producers of *multiple* tangible goods or assets.

[43] Changes in constant working capital (raw materials, etc.) resulting from variations in the scale of production are omitted here.

[44] Apart from the decline in the value of wage goods, which will accelerate, AI also brings faster devaluation of complex work. R&D and innovation are generally labor-intensive activities but the "development of deep learning holds out the promise of sharply reduced marginal search costs, inducing R&D organizations to substitute away from highly skilled labor towards fixed cost investments in AI" (Cokburn; Henderson; Stern, 2018: 22). In other words, there is no longer any need to go to India to exploit higher qualified programmers with low wages, if employing simple US labor is now sufficient.

[45] Pre-IA intangible assets imply a countertrend to capital devaluation: if developed for "local" uses they can not be recovered if the function for which they were created disappears. For example, specific flight reservation software from a bankrupt airline will have no inventory value (Haskell; Westlake, 2018). *Sunkness* of this kind of intangibles are thus part of the "failed investments" (Sweezy, 1976: 260-61) which are inevitable in capital accumulation.

market networks. At the current stage of accumulation, conflicts promise to meet profit expectations.

3.2. Capital accumulation: old and new contradictions

The dematerialization/devaluation of fixed capital, the progressive cheapening of complex labor, both results of machine learning, and the acceleration of circular external devaluation through international value chains, bring the main contradiction of the capitalist mode of production closer to the breaking point: the complete abolition of the law of value. But on the surface, other contradictions inseparable from this one seems to be generating important countertrends.

As it is well known since Marx, one of its main capital contradictions opposes increasingly socialized production to its private appropriation. How does AI make it transparent? Because machine learning feeds on data produced by society but mostly owned by big tech companies. Improvements in deep learning algorithms, which enable significant reductions in cost prices (and super profits, as well as increasingly shorter times for their "normalization"), are delayed if learning data cease to circulate due to legal or *de facto* monopolies (Cokburn; Henderson; Stern, 2018:7; 15). About data concentration there are strong evidences. IBM holds the largest number of patents, followed by Microsoft. Google's search engine accounts for 90% of the Internet search market which is immediately monetized for targeted ads[46]. Amazon, Microsoft, and Google monopolize another branch of big data, cloud computing. Furthermore, control of intangible assets in the ITC sector by monopoly capital extends to a very tangible fixed asset: its material path. Just five companies (Google, Amazon, Facebook, Apple, and Microsoft) own more than half of the world's submarine bandwidth (Rikap, C. ; Lundvall, B-Å, 2022:15).

It could hardly be otherwise, given that the companies that appropriated the super profits available during the launch phase of ICT grew precisely through the creation or acquisition of data platforms (see footnote 40). If monopolistic firms can delay or even block the spillover effects (Haskel; Westlake, 2018:9) of machine learning, productivity

[46] In 2006, Google acquired YouTube and developed Google Gmail and Google Maps.

gains will slow down. A widening gap between innovative companies (company X in the diagram above) and the others would mean that fewer innovations fuel external-circular devaluation. The devaluation of productive capital would proceed more slowly, regardless of the number of cycles required for each "devaluator" to exhaust itself.

As deep learning is an ongoing development, there is no statistics to test this countertrend effect. The idea that monopolies slow down the spread of innovation in order to benefit from rents has a long tradition in bourgeois economics, for which competition and monopoly are qualitatively opposed (Magaline, 1975:121). In fact, both represent just quantitative variations in formulas for drawing unpaid labor and it is profit changes that determine competition, not the other way round.

The historical experience of the business cycles after 2001 provides insights on this point. Section 2 showed that "star companies" contributed less for US productivity since 2001[47] but the profit rate (which was falling already since 1996) resumed its rising trend afterwards. During the next two cycles, in which "star companies" saw their share of sales decline, the innovations (including the first AI developments) that restored profitability were not slowed down. In other words, the sequence of innovation following the exhaustion of the external-circular devaluation effect continued to hold. This is not an unexpected result considering the kind of changes described in section 3.1. As intangible assets tend to develop spillover effects that are difficult to control, strategic partnerships are now becoming easier between monopoly capital and new companies that sometimes rose meteorically[48]. Conversely, it makes several of them increasingly competitive for constant *circulating* capital, which in the case of AI is data (its raw material), as seen above[49]. But whether the US big tech companies facilitated or delayed the emergence of

[47] The slowdown was already associated with declining competition and rising entry barriers (Gutierrez; Philipon, 2019: 315).

[48] Upstream and downstream the big data platforms, the competition-monopoly dialectic reproduces itself very fast. Companies of database software such as Oracle (now the fourth-largest software company by market capitalization ($662.35 billion) grew rapidly from the 1980s onwards and bought most of its earlier competitors. Hardware manufacturers (supercomputers, chips, etc.) also launched a new generation of big tech companies. Nvidia just entered the stock exchange in 1999 but today monopolizes the production of chips that support the latest AI models. Recently, it become the first company to reach a market capitalization of $4 trillion. *Nvidia beats Apple and Microsoft to become the world's first $4 trillion public company* CNN Business, Wed July 9, 2025. e.).

[49] Just as a partnership with an iron mine does not alter the nature of the ore's raw material in a steel mill, big data can be sold or transferred (as Microsoft did with OpenIA in 2019) without altering the nature of the data as an input for competitive downstream processing. (machine learning, data mining, market analytics, etc.)

the AI boom (an "if" story) is becoming less important than another rising contradiction emerging from international value chains.

When outsourcing began its association with international value chains, its impacts were not only felt in the increased profitability of the multinational firms that initiated the process, which were mainly US corporations. In the countries where investment went to, it accelerated the accumulation and the rise of the organic composition of capital. Most of the value chains in which "native" companies have been participating fostered the development of a skilled, lower-cost workforce (engineers, programmers, etc.). The same chains gave them access to sophisticated non-patented components, which they began replicating internally and to productivity increases[50]. No need for the industrial espionage of which Japanese companies were accused in the 1960s if now the use of most technical innovations is provided to Chinese and Indian subcontractors in outsourcing. Besides, it seems plausible that spillover effects based on imported know-how become more easily conveyed as the intangible assets increase their share in foreign investment.

The relationship between China's integration in FDI chains and the emergence of large Chinese firms is well known. In the 1990s, China was the second largest destination for foreign investment (after the US): it received between 25 and 30% of annual flows to developing countries (Tseng; Zebregs, 2003:69). The Indian FDI boom came later and was smaller: during the 1990s, China received an average net investment 28 times higher than India each year. Even at the peak year of FDI in India (2020), the flow was still four times lower than China's in that year. Even so, the opportunity given to Indian companies and offshore services[51] fuelled giants such as Infosys, Wipro, Tata Consultancy Services and Satyam. Today, Indian capital starts growing in an independent accumulation trajectory.

With regard to the impact on local capital accumulation and technological catch-up, it matters little whether Indian or Chinese suppliers' links to international value chains were established through direct US investment, subcontracting (as in the case of India), or through third parties, such as when Apple has its computers assembled in Shenzhen by its supplier Foxconn (Burbaumer, 2020:92). But when it comes to competition for super

[50] During the 1990's FDI in China contributed in average 0.4 to annual GDP growth and 2.5 to TFP (Tseng; Zebregs, 2003:82-83)

[51] Microsoft, Amazon, J. P. Morgan, Cisco, Ford, British Airways, Deutsche Bank, etc. For a brief outline of Indian offshoring, see Dat Giang, https://www.hdwebsoft.com/blog/a-history-of-it-outsourcing.htm

profits and, therefore, global competition for markets, the history of capital accumulation has a major explanatory weight. In this respect, today's differences with previous phases of imperialism are minor, but the faster devaluation of capital is also bringing about important new phenomena.

3.3. Capital accumulation: the big split

The emergence of competition poles in the wake of American investment is nothing new in the debates on imperialism after 1945. After American expenditure during the Korean War helped rebuilding the large Japanese monopolies and American multinationals established a strong presence in Europe, Japan and Europe were seen as the coming major challengers to US super profits (Faire, 1980: 60-64). This is not the place to discuss in detail why that did not happen but the different course taken by US-China relations (neither the central focus here) raises a relevant comparative question. Why did foreign investment and the participation of domestic capital in international value chains not transform Japan and Europe into political competitors of US monopoly capital, unlike China?

One obvious answer is the above mentioned split in capital ownership: Chinese accumulation has always been much further removed from American investment (FDI or commercial partnerships) than that of Europe and Japan. Chinese capital would therefore not have developed the common interests implied in partnerships. In fact, the main feature of capital exports after 1945 is the concentration of stocks and flows among imperialist countries, especially within the so-called Triad: the US, by far the largest exporter, Europe (European Union, including UK + Switzerland), and Japan[52]. Recent figures[53] from the

[52] Although Japan benefited from American public investment immediately after t1945, American multinational companies did not establish themselves in Japan except through commercial partnerships and licensing agreements (arms-length technology transfers). Currently, American investment in Japan represents less than 1% of the total stock. But in the opposite direction, the flow was large: in 2024, Japan remained the main investor in the US ($754.1 billion).

[53] The figures do not distinguish between real investment and phantom investment, which has no links to productive activity. In 2017, it was estimated that phantom investment, channeled through offshore Special Purpose Entities (SPEs) corresponded to 40% of total FDI (Damgaard,; Eljjaer; Johannesen, 2019:26).

OECD (which can be considered representative of the Triad and its junior partners, as Canada)[54] show shows the percentage of their position in the world stock:

Table 4 – FDI - OECD Positions

	Outward OECD (USD trillion - current)	Inward OECD (USD trillion - current)	Outward OECD /Word (%)	Inward OECD /Word (%)
2022	30.8	30.6	76.1	67.3
2023	33.9	34.0	76.9	68.5
2024	34.2	36.1	n.a.	n.a.

Source: OECD, FDI in Figures, April 2025

As more than three-quarters of the world capital stock came from the OECD states and at the same time, the OECD received about two-thirds of it, most of the flows were cross-investments among the Triad states. The US investment positions (which in 2024 amounted to 29% of the OECD external stock and 45% of its internal stock) confirm the pattern:

Table 5A - FDI – USA Outward Positions (in %)

	Europe	Canada	Asia/Pacific	Latin America*	Middle East	Africa
2022	60.2	6.9	15.5	15.4	1.2	0,8
2023	58.7	6.4	16.4	16.5	1.3	0.7
2024	58.2	6.7	16.6	16.4	1.3	0.7

Table 5B - FDI – USA Inward Positions (in %)

	Europe	Canada	Asia/Pacific	Latin America*	Middle East	Africa
2022	65.3	11.1	18.4	4.0	0.9	0,2
2023	64.0	12.8	18.6	3.6	1.0	0.2
2024	63.8	12.8	19.0	3.6	0.7	0.2

Source: BEA, Direct Investment by Country and Industry, 2023; 2024

*Includes "Other Western Hemisphere"

[54] The Organisation for Economic Co-operation and Development (OECD) has 38 members. Apart from the Triad, it includes Canada, Mexico, S. Korea, Australia, New Zealand and four US client States (Israel and three Latin American countries).

About two-thirds of US capital exports is concentrated in the Europe-Canada aggregate, with the remaining third divided between Asia-Pacific and Latin America. The Middle East has now residual percentages of US exports, not to mention Africa. The inward positions follow the same pattern: Europe and Canada are the major investors in the US (more than ¾ of the total FDI). Canada even has a current positive capital balance with the US, and the percentages of Asia are higher in inflows than in outflows (due to the weight of Japanese investments in the US).

But what best demonstrates the intertwining of US and European capital is the distribution of investment by activity. Currently, almost half (47.3%) of US capital invested worldwide go to holding companies, that is, to the activity of controlling other companies, rather than being allocated to specific businesses. Through balance sheet consolidation, dividend policies, and share buybacks, parent companies can easily manage the unequal distribution of profits resulting from international value chains, the organization of which in most cases does not concern them directly: this is left to the companies they control. In other words, holding companies access global production capacity without having to invest locally. The following table shows where American multinationals are reconfiguring the international value chains.

Table 6 A– USA Investment in Holding Companies by region (%): Year 2024

Europe	Canada	Asia/ Pacific	Latin America	Middle East	Africa
68.1	3.1	12.8	15.4	0.3	0.3

*Includes "Other Western Hemisphere

Source: Based on U.S. BEA, "Balance of Payments and Direct Investment Position Data" (accessed Saturday, August 9, 2025).

https://apps.bea.gov/iTable/?ReqID=2&step=1&_gl=1*w1bglf*_ga*ODI0MDY3MzU3LjE3NTEwMjU4MDU.*_ga_J4698JNNFT*czE3NTQ3NDUyMzQkbzYkZzEkdDE3NTQ3NDY3OTMkajU5JGwwJGgw#eyJhcHBpZCI6Miwic3RlcHMiOlsxLDIsMyw0LDUsNywxMF0sImRhdGEiOltbIlN0ZXAxUHJvbXB0MSIsIjEiXSxbIlN0ZXAxUHJvbXB0MiIsIjEiXSxbIlN0ZXAyUHJvbXB0MyIsIjEiXSxbIlN0ZXAzUHJvbXB0NCIsIjMwIl0sWyJTdGVwNFByb21wdDUiLCIxIl0sWyJTdGVwNVByb21wdDYiLCIxIl0sWyJTdGVwN1Byb21wdDgiLFsiNzEiXV0sWyJTdGVwOFByb21wdDlBIixbIjEiXV0sWyJTdGVwOFByb21wdDEwQSIsWyIxIl1dXX0=

More than two-thirds of American investment aimed at reorganizing international capital was made in Europe. In fact, more than half (55.4) of the US investment position in

Europe is in holding companies, which confirms the strategic orientation of American capital to subordinate European capital (with the corresponding political repercussions). In contrast US holdings in Asia accounts for only 13% of its stock in that activity, being irrelevant (or even negative) in its direct rivals:

Table 6 B– USA Investment in Holding Companies - Main countries in Asia/Pacific[55] (%): Year 2024

Singapore	Australia	China (with Hong-Kong	India	Taiwan	Japan
7.9	3.3	1.7	0.02	0.02	-0.27

Source: see Table 6A

The fact that American multinationals have made very few holding investments in Asia does not mean, quite the contrary that they do not benefit from the social division of labour that takes place there. As seen above, it is not necessary to operate subsidiaries to control a value chain and redistribute the surplus value produced in it unevenly. The more active stance of U.S. investors is reflected in the different cross-investment returns: repatriated profits of US export capital show higher return rates than those of the foreign investors in the US[56]. The US yield difference is greater than for any other comparison with OECD members[57].

Table 7 – Yielding Returns on FDI - USA Receipts and Payments

	Yielding Return (Receipts/Outward Position)	Yielding Return (Payments/Inward Position)
2022	7.6	2.8
2023	6.6	2.1
2024	6.2	2.0

Source: Based on OECD, see Table 4

[55] The Singapore and China figures of US Asian investment in holdings probably represent mostly phantom investment. Hong Kong SAR is a US$1.1 trillion offshore center, and Singapore is valued at US$0.8 trillion, which is more than the Cayman Islands. (Damgaard,; Eljjaer; Johannesen, 2019:26-27).

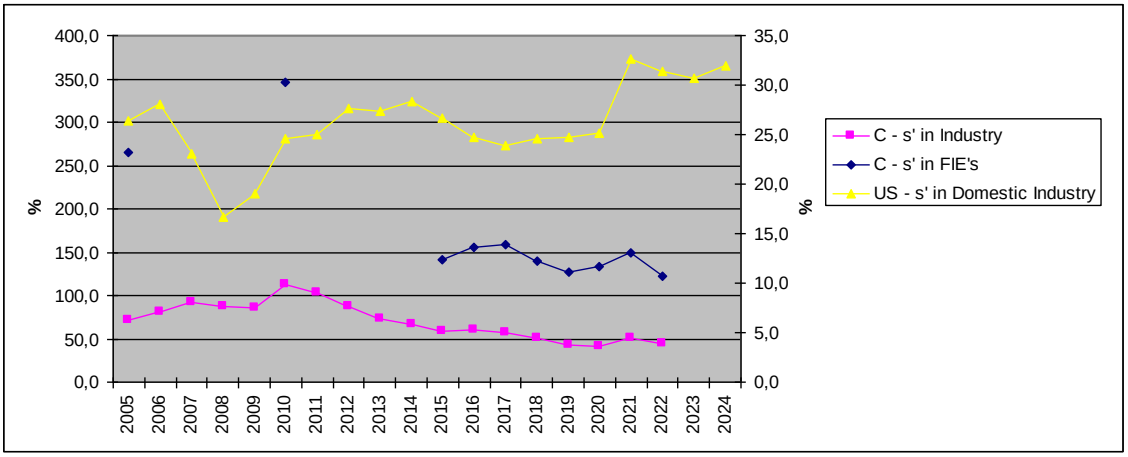
[56] The operating results of the FDI must be adjusted according to the deviation of profits to its subsidiaries, which multinationals account for tax reasons. For 2014, the adjusted results reduce external income by about one-third, with a consequent increase in internally generated revenues (Bruner; Rassier; Ruhl, 2018:24-25). However, since the accounting transfer of internal profits to subsidiaries is not exclusive to American multinationals, profitability results can be compared.

[57] This trend, already noted in the 1960s, was initially explained by the higher percentage of direct investment from the US in Europe, compared to the higher portfolio investment by Europeans in the US (Jalée, 1981:95-102).

The weaker positions of American investment in Asian holdings are combined with their equally weak positions in Asian industry (of US FDI stock, only 5% is now in China, 1.9% in Japan, 1.5% in India, and 1.3% in South Korea)[58]. Here, the previous level of accumulation is determinant as regards profit splits. Some Asian multinationals that had already been accumulating rapidly since the 1970s grew even more through strategic partnerships with US monopoly capital (similar to the growth of other fast growing newcomers in the US - see section 3.2 and footnote 47). They became thus able to capture significant shares of the surplus value in the global reorganization of labor that took place since the 1990's. The current super profits of AI value chains show how Taiwanese and South Korean companies are well positioned as regards innovation processes, which even in some cases originated there[59].

For Asian latecomers the division of surplus value was much less favorable. Capital operating in China and even more so India have continued to settle with lower profit rates regardless of the level of their domestic surplus value rates. The comparison of China's rate of surplus value and that of the US is unequivocal confirmation of the subordination of Chinese capital with regard to profit distribution.

Figure 8 – China and USA- surplus value rate (s') compared: 2005-24



[58] The percentages relate to known direct owned US stock but

[59] The Taiwanese company TSMC, the largest semiconductor manufacturer, is the 44th most valuable company in the world: between 2019 and 2022 multiplied its profits by 2.4 times. TSMC and Samsung Electronics (operating profit of $3,4 billion in the second quarter of 2025) are ahead in the race for the 2nm chip, a major tool for the IA designers. South Korea's SK Hynix, a manufacturer of broadband memory and one of Nvidia's main suppliers, posted a profit of $6.7 billion in the second quarter of 2025, up 69% from the previous year (Jornal de Negocios, 12-09-2025)

Sources:

for China profits, Ministry of Commerce, 2023: 50

for China wages, National Bureau of Statistics of China - China Statistical Yearbook - 2015; 2024

for s' in the US, see Figure 2

Although between 2005 and 2022 the average rate of labor exploitation in China was higher than in the US (2.9 times, due to large wage differences[60] combined with lower labour productivity), China's surplus value rate entered a recessionary phase after 2010. The decline only recently appears to have stabilized. In contrast, as we have seen, the rate of surplus value in the US is on an upward trend, interrupted only between 2014 and 2017. A comparison with foreign companies in China (FIE's) shows the same pattern: with an average rate of surplus value even higher (6.7 times compared to the US, resulting from not-so-low wages[61] but with similar levels of labor productivity/ intensity), their **s'** curb keeps a downward trend despite FIE's direct integration into global value chains. As the two **s'** curb of China should be rising (and not falling), Figure 9 confirms that less and less of the surplus value produced in China corresponds to profits appropriated by companies operating in China.

These results somewhat devalue the issues surrounding the origin of FDI in China and the direct participation of American capital in Chinese growth. According to official data, for more than three decades most FDI in China has usually come from the so-called Chinese Diaspora:

[60] Chinese wages have been narrowing the gap with American wages. For the period 2005-22, the average annual American wage was 7.1 times higher, but the average gap narrowed from 17 times in 2005 to 4 times in 2023. For the sources of the comparison, see Figure 8.

[61] For the period 2005-22, the average annual American wage was "just" 5.8 times higher than the FIE 's wage in China. The average gap also narrowed: from 13 times in 2005 to 3 times in 2023.

Table 8 – FDI Sources in China (%)

	Chinese Diaspora*	Triad**
1991	66.6	25.9
1995	66.7	22.4
1999	53.7	28.1
2005	39.5	24.1
2010	64.3	13.5
2015	75.8	9.6
2020	80.8	9.1
2023	74.9	13.3

*Includes Hong Kong, Taiwan, Singapore and Macao

*From 2005 onwards, it includes all European countries, not just the European Union

Sources:

1991-1995, Tseng, Zebregs, 2003:70;

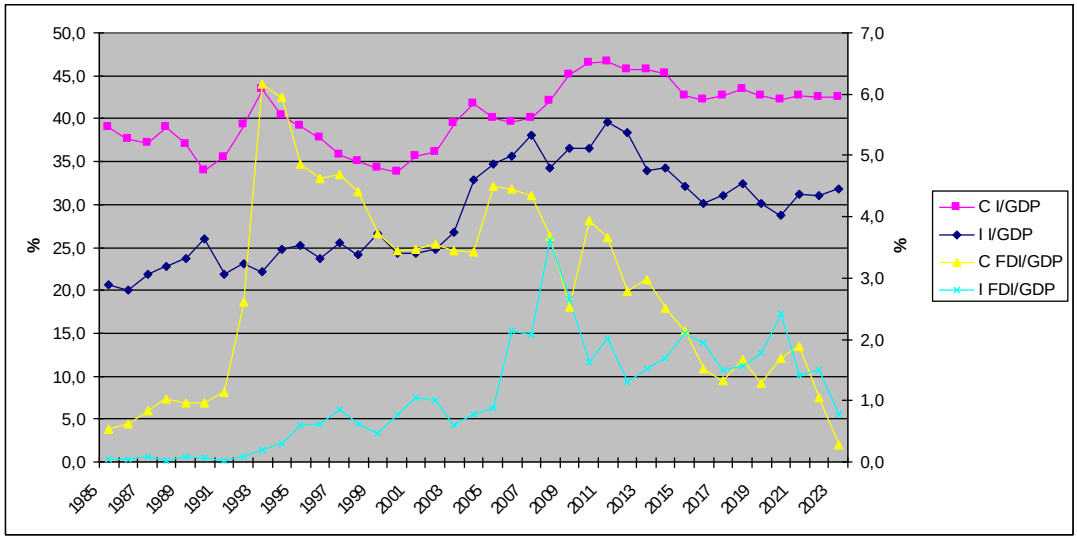
2005-2022, National Bureau of Statistics of China - China Statistical Yearbooks

These percentages are controversial. Some estimates, taking into account the weight of offshore locations such as Hong Kong and Singapore in inflows (with an average aggregate of more than two thirds) and the fact that phantom investments conceal the first owner, suggest that in the first decade of the century the percentage of American capital could have reached 20% (Bürbaumer, 2024:90-91). Others, considering that a large part of the remittances imported from these offshore locations are in fact "round-tripping" investments (that is Chinese investment with a view to benefiting from tax and security advantages), claim that part of the recorded FDI actually corresponds to domestic capital re-entering the country. During the 1990's its percentage of registered FDI would stand between 7 and 25% (Tseng; Zebreg: 2003: 69-70). Regardless of the reverse corrections, the share of Triad capital in China tends to decline.

From these available data it can be concluded that two poles of accumulation are now growing side by but that in Chinese accumulation (whether done by joint ventures, state-owned enterprises, or even FIEs) profitability is declining as result of its subordinated integration into value chains organized by the Triad. Chinese (as well as Indian) capital has therefore prioritized reorganizing the global market.

Such reorganization is not only possible but already underway because to do so they depend less and less on foreign investment. The accelerated devaluation of capital makes possible to reach a critical mass in accumulation and from there multiplier effects may be expected. In countries with subordinate capital accumulation, surplus value taxes may be much higher (than in the Triad) but they do not mean higher productivities and profit rates (see Figure 8). That is why the share of net investment in China and India remained thus for many years at much higher percentages: the Chinese one for the period 1985-2023 was almost double than in the US and Germany (1,9 and 1,8 times higher respectively). As fixed capital becomes cheaper a downward trend is now ongoing in both Asian countries since 2011, although less pronounced in China. Because of such high domestic investment rates, the decline in the share of FDI began in China as far as in 1993 (in India where GDP took off later, just since 2008).

Figure 9 – China and India: Investment and Foreign Direct Investment as Shares of GDP: 1985-2023



Sources:

For China:

I/GDP: Statista, Total investment as a share of the gross domestic product (GDP) in China, https://www.statista.com/statistics/1197064/china-total-investment-as-gdp-share/

FDI: World Bank Group Data, FDI, net intflows, current US$ - China https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD?locations=CN

GDP: U.S. BEA, Gross Domestic Product [GDPA], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/GDPA, August 9, 2025. https://fred.stlouisfed.org/series/MKTGDPCNA646NWDB

For India:

I/GDP: Statista**,** Total investments in major economies as a share of the gross domestic product (GDP) from 1980 to 2023
https://www.statista.com/statistics/1230784/total-investment-as-gdp-share-major-economies/

FDI: World Bank Group Data, FDI, net intflows, current US$ - India
https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD?end=2024&locations=IN&start=1970

GDP: World Bank Group Data, GDP (current USD) – India
https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=IN

The tendency toward capital devaluation is increasing with the ongoing changes in technical composition of capital related to the new major "general purpose innovation", AI. As seen in section 3.1, these changes are cheaper to implement than previous ones. The reconfiguration of value chains will certainly be shorter and the advantages accumulated by dominant capitals in other technological cycles count for little in the current transition. China and India, with plans for technological autonomy underway since 2021 are thus the forefront of the AI competition. Besides both in China and India there is already an ICT consumer market large enough to produce the databases needed to feed the production of algorithms (Bürbaumer, 2024: 142-151).

But being well positioned to achieve the coming innovations is not the same as getting a larger share of super profits. As seen above, the great global division of labor carried out by American capital since the 1980's does not always imply technological superiority, but rather an increased control over the companies that have it. Table 6 shows how US capital exports has taken on an increasingly organizational dimension. Other Triad capital started to do the same since the 1960's (Jalée, 1981: 147-163). The composition by sectors of US and Chinese investment abroad also seems to indicate a structural similarity.

Table 9 – USA and China: Outward Foreign Direct Investment by Sector

Sector of Activity	USA*	China*
Holding Companies**	47.3	39.9
Finance***	16.5	11.0
Manufacturing	16.0	16.9
Other Industries	6.0	3.9
Information	5.7	4.5
Wholesale Trade	3.7	14.3
Scientific and Technical Services	2.6	3.0
Mining	2.2	6.5

*US Data for 2024 and Chinese for 2023

**In China Statistical Yearbook, the label is "Leasing and Business Services"

*** Finance includes Depository Institutions

Sources:

For the USA: see Table 6-A

For China: National Bureau of Statistics of China - China Statistical Yearbook 2024, 11-20

Although differences in statistical classification systems leave room for errors, it can be ventured that *both* American and Chinese investments have now more than half of their placements in controlling assets (holding companies and financial capital). The superiority of the American percentage in this sector is difficult to quantify because statistical labels are not explicit about the weight of holdings in Chinese investments. Still, the destinations of Chinese capital exports may indicate that errors by excess as regards financial assets are unlikely: while, as seen above, the United States concentrates its holding companies in European countries (68%), China concentrates 82% of its *total* capital in offshore centers[62].

To conclude this brief overview of the major poles of global accumulation, just two notes that refer to imperialism as it has existed since the end of the 19th century.

If capital exports of the two competing poles, the US and China, are primarily directed toward financial assets, this in no way means that the "virtual economy" is replacing the

[62] Of which Hong Kong, Singapore, and Macao have an aggregate of 67.2, joined by 19.7 in the Cayman and Virgin Islands. Even discounting the money laundering effect, which the Chinese government wants to restrain, such an order of magnitude shows an investment strategy.

real one[63]. The complex indirect control (shareholdings, industrial partnerships) between large groups remains oriented to a very tangible objective: to accelerate *industrial* superiority that allows for the unequal distribution of profits, even if for increasingly shorter periods. Competition in the AI sector is no exception. For instance, the rising US "star" Nvidia is now investing €5 million in Intel shares (about 5%) so that the latter can build new chip systems combining central and graphics processors, which, until now, the two companies had been developing separately[64].

Secondly, in these wars the alliance between capital and the State, present since the beginning of imperialism, has lost none of its importance. State administration continues to oversee accumulation, intervening in national and international conflicts in order to maximize surplus and rebalancing private capital[65]. Returning to the example above, even before Nvidia's capital injection in Intel, the US federal government had already decided to convert Intel the $8.9 billions in subsidies it had granted to Intel into stock shares. Washington's main goal is to prevent the company from selling its loss-making chip foundry to third parties (i.e., indirect Chinese interests)[66]. Two weeks later, the Chinese government ordered Chinese big tech companies, such as ByteDance and Alibaba, to cease purchasing and testing Nvidia's new chips. The Chinese government alleges violations by Nvidia of China's antitrust laws but does not hide that it is protecting domestic manufacturing: it is said that Chinese-made AI chips are already comparable or even superior to the models that Nvidia sells in the country (PPlware, 17-09-2025).

[63] The percentage differences between US and China in mining and wholesale trade point to global exports, much more coming from Chinese than from US capital.

[64] Sapo, 19-09-2025, https://sapo.pt/artigo/nvidia-e-intel-juntam-se-para-escrever-a-proxima-era-da-computacao-68cd2eb72fe52aeaba82d7cb

[65] For an overview of U.S. government support for private capital for research and launch of new investment branches in the 19th and 20th centuries, see Lazonick; Shin: 2020, 33-40.

[66] Nvidia, Apple, and Qualcomm almost ceased ordering chips from Intel, preferring to purchase semiconductors from TSMC. The government may even acquire an additional 5% of the company over the next five years if Intel ceases to control at least 51% of its foundry unit. Jornal de Negocios, 28-08-25.

Conclusions: what is new about imperialism today?

As working hypotheses to be tested, below is a list of topics summarizing the impact of external and circular devaluation of productive capital that can be observed in today's imperialism. In the previous sections, some conclusions were drawn, from which other hypotheses can be raised. In the list below, points 8-12 include some of these exploratory hypotheses which should not be considered as developments related to the sections above.

1. External and circular devaluation of productive capital, *caeteris paribus*, is a necessary and sufficient condition for a rising profit rate. For at least three decades, the curves of surplus value and profit rates in the most advanced economies, especially in the United States, show an upward trend (see Section 1).

2. As revolutionary as its effects may look, the external and circular devaluation of productive capital is not a qualitative change in the capitalist mode of production. What seems new in recent decades is the shortening of its cycles. Capital devaluation cycles tend to be shorter because:
- the boom in FDI caused external-circular devaluations to affect growing masses of capital, which exhausts their effect more quickly (see Section 2);
- the replacement of equipment is being accelerated by the increasing dematerialization of fixed capital: the next wave of AI is reinforcing this trend (see Section 3.1)

3. The distribution of profits was never fully perequated. If by the mid-20th century it was not perequated on a national scale (Sweezy, 1976:303-305), the increasing international division of labor from 1980's onward gave it a global dimension. Just as before small capitalists in the domestic market transferred part of their surplus value to large monopolistic companies, today much of the productive capital does the same in relation to the multinational corporations in control of the international value chains. The magnitude of super profits is in proportion to the size of global monopolies (see Section 2).

4. The ongoing innovation/devaluation cycle is dominated by the development of Artificial Intelligence, a "general purpose innovation" (GPS) that brings the prospect of a near full dematerialization of fixed capital. The super profits generated by innovations derived from this GPS are expected to cover all productive activities (see Section 3.1.)

5. The dematerialization of fixed assets means that the surplus value appropriated corresponds less and less to the surplus value produced[67] (see Section 3.1.) Needless to say that dematerialized assets remain the result of social labour and that the correspondence between the mass of profit and surplus labour remains valid for the global capitalist production.

6. The unequal distribution of profits disadvantaged newly integrated capitals, such as those in China and India, but FDI and external-circular devaluation of capital gave them a rapid access to a position in which they can reorganize the international value chains. The reorganization is creating two separate poles of accumulation, centred in the US and China (see Section 3.2 and 3.3).

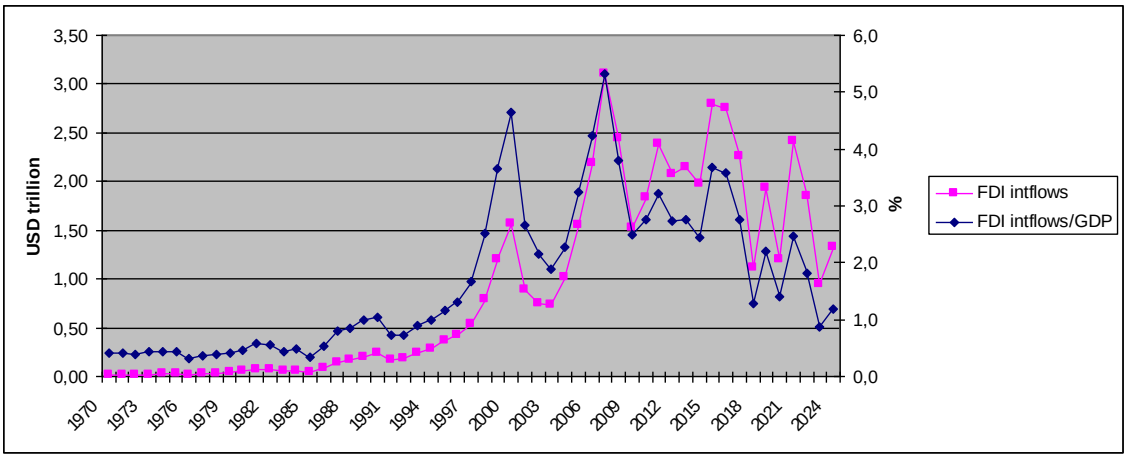
7. The devaluation of capital means producing more surplus value per unit of capital. Thus, a smaller share of profits needs to be reinvested in the production process. In fact the share of investment therefore tends to fall in all dominant economies (Section 2 and 3.3)[68]. Thus the difference between production and investment, on the one hand, and productive capacity, on the other, tends to increase.

8. To alleviate chronic depression, Sweezy considered military expenditure to be the most likely solution to foster extensive accumulation (Sweezy, 1976: 247-261). Considering the dual accumulation blocs of today's world, military expenditure remains the most likely way to ensure the expanded reproduction of capital.

[67] Using bourgeois economic terminology, such a devaluation of fixed assets corresponds to an indeterminate increase in the marginal productivity of capital (MPK).
[68] In bourgeois literature the investment gap has been labelled "secular stagnation", after the former US official Larry Summers's lecture to the IMF in 2013(Haskell; Westlake, 2018: 93)

9. International investment confirms the gap between output and production capacity, in absolute and relative figures. Consequently, the association between imperialism and capital exports is becoming less important[69].

Figure 10 – Word: FDI Net Inflows



Source: World Bank Group Data

FDI: Foreign Direct Investment, net inflows (BoP, current US$)
https://data.worldbank.org/indicator/BM.KLT.DINV.CD.WD?end=2024&start=1970&view=chart
GDP: GDP (current US$) – World
https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2024&locations=1W&start=1970

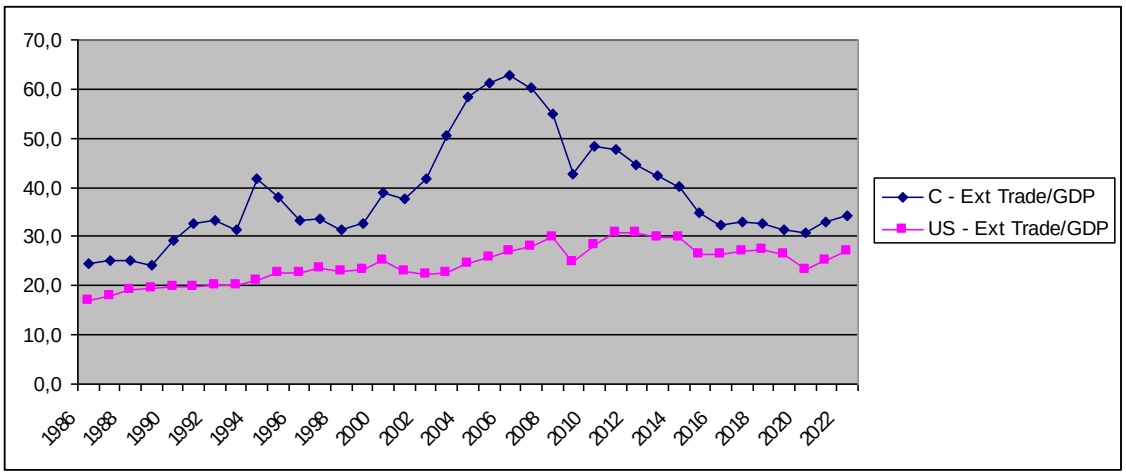
But a distinction seems necessary. On the one hand, foreign investment is likely to increase in sectors that are strategic for controlling AI innovations, especially during the expansionary phase of this cycle. The increase in the share of US FDI in global FDI seems to show it: 6.3 in the years 2018-23 compared to 14.3 in 2005-18.

10. Since profits are not equalized, the vast majority of sectors have below-average profit rates. Although less capital is needed across all sectors, domestic demand is more resilient than most external demand, which is now associated with declining profit rates. Therefore, export industries represent a lesser share in accumulation. In China, for example, the world's largest exporter, aggregate foreign trade has been declining since

[69] However, it is necessary to separate the cyclical effects. For example, the decline in the share of FDI became more pronounced during the short profit recession (2012-19).

2006. In the United States, this aggregate is half as large and therefore more stable but the trend seems to be operating for a decade.

Figure 11 – US and China - International Trade as a share of the Gross Domestic Product (GDP)



Source:

China:

Foreign Trade: Ministry of Commerce (2023): 52

GDP: Statista, ***Gross domestic product (GDP) at current prices in China from 1985 to 2024 with forecasts until 2030***
https://www.statista.com/statistics/263770/gross-domestic-product-gdp-of-china/

USA:

Foreign Trade: U.S. BEA, Gross Domestic Product [GDPA], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/GDPA, August 9, 2025.

GDP: see Figure 6

It is not difficult to imagine that with the dematerialization of physical assets and unequal profit distribution, most of the production that for some decades was segmented along international chains component may return to local production. The case of the US (see section 2) appears to be a precursor example of this "return" trend.

11. If the acceleration of capital devaluation is diminishing the importance of the division of labor and international investment, what really matters for imperialism today? No so much the control of territories or population as before, when the extraction of surplus labour was carried out on a larger scale, but rather the control of value chains assuring

the realization of super-profits. The core of competition is now increasingly focused on infra-structural *media*: research licenses, big data, strategic components, communication networks, trade distribution and means of payment (Bürbaumer, 2024).

12. The "great evacuation" of the system by its working population is irreversible[70]. The "Africanization" of social relations is underway everywhere: more and more of the population is becoming redundant for accumulation. With it, it is predictable that the class struggle will intensify, with the particularity that one of the parties is not composed by organized working classes, but rather the remnants of the world population excluded by capital.

[70] In the US between 1960 and 2015, the participation of the 25-54 age group in the labor market fell by almost 20%. This lack of registration on the part of a generally unskilled population that simply gave up looking for work coexists with an official unemployment rate of only 3% (Rebière; Lebon, 2024: 181)

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OECD, FDI in Figures.

Statista.

U.S. BEA (Bureau of Economic Analysis).

U.S. BLS (Bureau of Labor Statistics,Occupational Employment and Wage Statistics).

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