

Tendency of the rate of profit to fall

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The **tendency of the rate of profit to fall** (**TRPF**) is a [hypothesis](#) in [economics](#) and [political economy](#), most famously expounded by [Karl Marx](#) in chapter 13 of *Capital, Volume III*.^[1] Although not accepted in 20th century mainstream economics, the existence of such a tendency was widely noted throughout the 19th century.^[2] Economists as diverse as [Adam Smith](#),^[3] [John Stuart Mill](#),^[4] [David Ricardo](#)^[5] and [Stanley Jevons](#)^[6] referred explicitly to the TRPF as an empirical phenomenon that needed to be explained. They differed in the reasons they gave for why the TRPF might necessarily occur.^[7]

In his 1857 *Grundrisse* manuscript, Karl Marx called the tendency of the [rate of profit](#) to fall "the most important law of political economy" and sought to give a [causal](#) explanation for it, in terms of his theory of [capital accumulation](#).^[8] The tendency is already foreshadowed in chapter 25 of *Capital, Volume I* (on the "general law of capital accumulation"), but in Part 3 of the draft manuscript of Marx's *Capital, Volume III*, edited posthumously for publication by [Friedrich Engels](#), an extensive analysis is provided of the tendency.^[9] Marx regarded the TRPF as proof that capitalist production could not be an everlasting form of production, since, in the end, the profit principle itself would suffer a breakdown.^[10] However, because Marx never published any finished manuscript on the TRPF himself, because the tendency is hard to prove or disprove theoretically, and because it is hard to test and measure the rate of profit, Marx's TRPF theory has been a topic of controversy for more than a century.

Smith, Ricardo, and Marx

In Adam Smith's TRPF theory, the falling tendency resulted from increased competition which accompanied the growth of capital. Intensifying competition itself would drive down the average profit rate.^[11] Criticizing Adam Smith, [David Ricardo](#) argued that competition could only level out differences in profit rates on investments, but not lower the general profit rate (the grand-average profit rate) as a whole.^[12] Apart from a few exceptional cases, Ricardo claimed, the average rate of profit could only fall if wages rose.^[13] In *Das Kapital*, [Karl Marx](#) criticized Ricardo's idea. Marx argued that, instead, the tendency of the rate of profit to fall is "an expression peculiar to the [capitalist mode of production](#) of the progressive development of the social productivity of labor".^[14] Marx never denied that profits could contingently fall for all kinds of reasons, but he thought there was also a *structural* reason for the TRPF, regardless of market fluctuations.

Simply put, Marx argued that technological innovation enabled more efficient [means of production](#). Physical [productivity](#) would increase as a result, i.e. a greater output (of [use values](#), i.e., physical output) would be produced, per unit of capital invested. Simultaneously, however, technological innovations replaced people with machinery, and the [organic composition of capital](#) increased. Assuming only labor can produce new additional value, this greater physical output would embody a gradually decreasing value and [surplus value](#), relative to the value of production capital invested. In response, the average rate of industrial profit would therefore tend to decline in the longer term. It declined in the long run, Marx argued, paradoxically not because productivity reduced, but instead because it increased, with the aid of a bigger investment in equipment.^[15] The central idea that Marx had, was that overall technological progress has a long-term "labor saving bias", and that the overall long-term effect of saving labor time in producing commodities with the aid of more and more machinery had to be a falling rate of profit on production capital, quite regardless of market fluctuations or financial constructions.^[16]

So Marx regarded this as a general tendency in the development of the capitalist mode of production. But it was only a *tendency*, because there are also "counteracting factors" operating which had to be studied also. The counteracting factors were factors that would normally raise the rate of profit. In his draft manuscript edited by [Friedrich Engels](#) (Marx did not publish it himself), Marx cited six of them:^[17]

- more intense exploitation of labor (raising the [rate of exploitation](#) of workers);

- reduction of wages below the value of [labor power](#) (the [immiseration thesis](#));
- cheapening the elements of [constant capital](#) by various means;
- the growth of a relative surplus population (the [reserve army of labor](#)) which remained unemployed;
- foreign trade reducing the cost of industrial inputs and consumer goods; and
- the increase in the use of share capital by joint-stock companies, which devolves part of the costs of using capital in production on others.

Nevertheless, Marx thought the countervailing tendencies ultimately could not prevent the average rate of profit in industries from falling; the tendency was intrinsic to the capitalist mode of production.^[18] In the end, *none* of the conceivable counteracting factors could stem the tendency toward falling profits from production. The capitalist system would age like any other system, and would be able only to *compensate* for its age, before it left the stage of history for good.

There could obviously also be several other factors involved in profitability which Marx did not discuss in detail,^[19] including:

- reductions in the turnover time of industrial capital generally (and especially [fixed capital investment](#))^[20]
- accelerated depreciation and faster throughput;^[21]
- the level of price inflation for different types of goods and services;^[22]
- taxes, levies, subsidies and credit policies of governments, interest & rent costs.^[23]
- capital investment into previously non-capitalist production, where a lower [organic composition of capital](#) prevailed;^[24]
- military wars or military spending causing capital assets to be inoperative or destroyed, or spurring war production (see [permanent arms economy](#));^[25]
- demographic factors^[26]
- advances in technology and technological revolutions which rapidly reduce input costs.^[27]
- substituted natural resource inputs, or marginal increased cost of non-substituted natural resource inputs.^[28]
- consolidation of mature industries into an oligarchy of survivors.^[29] Mature industries do not attract new capital because of low returns.^[30] Also, mature companies with large amounts of capital invested and brand recognition create *barriers to entry* against new competitors.^[31] See also [secular stagnation theory](#).
- the use of credit instruments to reduce capital costs for new production.

The scholarly controversy about the TRPF among Marxists and non-Marxists has continued for a hundred years.^[32] There exist nowadays several thousands of academic publications on the TRPF worldwide. However, no book is available which provides an exposition of all the different arguments that have been made.

Standard criticisms of Karl Marx's argument

Marx's interpretation of the TRPF has been the source of intense controversy, and has been criticized in three main ways:

- By raising productivity, labor-saving technologies can *increase* the average industrial rate of profit rather than lowering it, insofar as fewer workers can produce vastly more output at a lower cost.^[33] [Ladislaus von Bortkiewicz](#) stated: "Marx's own proof of his law of the falling rate of profit errs principally in disregarding the mathematical relationship between the productivity of labour and the rate of surplus value."^[34] [Jürgen Habermas](#) argued in 1973–74 that the TRPF might have existed in 19th century liberal

capitalism, but no longer existed in [late capitalism](#), because of the expansion of "reflexive labor" ("labor applied to itself with the aim of increasing the productivity of labor").^[35]

- How exactly the average industrial rate of profit will evolve, is either uncertain and unpredictable, or it is historically contingent; it all depends on the specific configuration of costs, sales and [profit margins](#) obtainable in fluctuating markets with given technologies.^[36] This "indeterminacy" criticism revolves around the idea that technological change could have many different and contradictory effects. It could reduce costs, or it could increase unemployment; it could be labor saving, or it could be capital saving. Therefore, so the argument goes, it is impossible to infer definitely a theoretical principle that a falling rate of profit must always and inevitably result from an increase in productivity. Perhaps the law of the tendency of the rate of profit to fall might be true in an abstract model, based on certain assumptions, but in reality no substantive empirical predictions can be made. In addition, profitability itself can be influenced by an enormous array of different factors, going far beyond those which Marx specified. So there are tendencies and counter-tendencies operating simultaneously, and no particular empirical result necessarily follows from them.
- The labor theory of product-value is wrong, which obviates the bulk of Marx's argument. [Marginal utility](#) theory predicts that a relatively high rate of profit attracts further investment, but each additional unit of production will generally tend to be of less utility (and therefore less value) to the market, causing the overall rate of profit to fall absent any technological innovation increasing productivity. The commodity in question will lose its appeal to investors, who will then invest in other, newer lines of production offering higher returns.

As regards the first criticism, the Japanese economist [Nobuo Okishio](#) (see [Okishio's theorem](#)) famously argued, "if the newly introduced technique satisfies the cost criterion [i.e. if it reduces unit costs, given current prices] and the rate of real wage remains constant", then the rate of profit must increase.^[37] Assuming constant real wages, technical change would lower the production cost per unit, thereby raising the innovator's rate of profit. The price of output would fall, and this would cause the other capitalists' costs to fall also. The new (equilibrium) rate of profit would therefore have to rise. By implication, the rate of profit could in that case fall, only if real wages rose in response to higher productivity, squeezing profits. This theory is sometimes called *neo-Ricardian*, because David Ricardo also claimed that a fall in the rate of profit can only be brought about by rising wages.

Intuitively, Okishio's argument makes sense. After all, why would capitalists invest in more efficient production on a larger scale, unless they thought their profits would increase? Orthodox Marxists have typically responded to this argument in five kinds of ways (there are, of course, numerous other arguments, involving more or less complex mathematical models):

1. Capitalists operating in a competitive environment may not have any choice about investing in new technologies, to keep or expand their market share, even if doing so raises the pressure for all of them to spend an ever-larger share of their income on the newest technology.^[38]
2. It may be that in the heyday of a technological breakthrough, profits do indeed initially increase, but as the new technologies are widely applied by all enterprises, the overall end result is that average rate of [return on capital](#) falls for all of them.^[39] (This is exactly what Okishio's equilibrium model seeks to refute.)
3. A slight reduction in annual profit rates on capital invested due to more expensive productive equipment may not seem such a problem to business anyhow, if it is compensated by an increase in profit *volume* (profit margins) through increased sales and market shares. The yield on capital might decline somewhat in percentage terms, while total net income from the increased capital holding increases.^[40]
4. As Prof. Okishio himself acknowledged, his argument is based on a [comparative static analysis](#). His starting point is an *equilibrium* growth path of an economy with a given technique. In a given branch of industry, a technical improvement is introduced (in a way similar to what Marx described) and then the new *equilibrium* growth path is established under the assumption that the new technique is generally adopted by the capitalists of that branch. The result is that even under Marx's assumptions about technical progress, the new equilibrium growth path goes along with a higher rate of profit. However, if

one drops the assumption that a capitalist economy moves from one equilibrium to another, this result no longer holds.^[41] There is no real evidence that capitalist development spontaneously tends to equilibrium, since there are continuously market fluctuations, mismatches of supply and demand, and periodic economic crises. In addition [perfect competition](#) does not exist, and corporations may actively try to block competitors in their markets (e.g. [European Union Microsoft competition case](#)).

5. If Prof. Okishio was correct, it becomes difficult to explain why, through the greatest long boom in the history of capitalism (1947-1973), the average rate of industrial profit trended down.

20th century Marxist controversies

The 20th century Marxist controversies about the TRPF focused on five issues: (1) the relevance of the TRPF for understanding and explaining capitalist economic crises; (2) the role of profitability tendencies in the final collapse of capitalism; (3) the political significance of the TRPF for the policy of workers' parties; (4) the theoretical consistency of the TRPF argument; and (5) the data about empirical profitability trends in the long term. In addition, philosophers and economists also discussed (6) the sense in which the TRPF could be considered an economic "law", since it seemed unclear how a necessary tendency could be "necessary" or inevitable, if it was only a tendency, in combination with other tendencies.^[42]

The breakdown controversy

The first big scientific debate about Marx's economic theory, starting in the 1890s, was the so-called "breakdown controversy", in which the tendency toward falling profitability played an important role.^[43] The debate^[44] began, when the veteran German socialist leader [Eduard Bernstein](#) claimed that it was wrong to think that "the end was nigh" or that capitalism would collapse through a catastrophic breakdown.^[45] He aimed to show with facts and figures that Marx's analysis of the tendencies of capitalism had turned out to be partly wrong.^[46] Bernstein believed that Marx's theory therefore had to be *revised* (this was known as the "revisionist" position).^[47] In response, numerous "orthodox" Marxist critics tried to prove that capitalism was necessarily doomed, at least in the long term.^[48] This controversy about the fate of the capitalist system still continues.

From the late 1920s and 1930s onward, classical revolutionary orthodox Marxists like [Henryk Grossmann](#),^[49] [Louis C. Fraina](#) (alias Lewis Corey) and [Paul Mattick](#) argued that at a certain point, the falling rate of profit stops the total mass of profit in the economy from growing altogether, or at least from growing at a sufficient rate. This results in a crisis of overaccumulation (or a shortage of surplus value), and consequently a drop in new productive investment, causing an increase in unemployment. This, in turn, leads to a wave of takeovers and mergers to restore profitable production, plus a higher intensity of labor exploitation. In the end, however, after a lot of cycles, capitalism collapses.^[50] This contrasted with [V.I. Lenin](#)'s idea that in the crises of bourgeois society "there is no such thing as an absolutely hopeless situation", since the bourgeoisie can – in principle – always find a way out.^[51] Lenin regarded the abolition of capitalism as a conscious political act, not as a spontaneous result of the breakdown of the economy. In 1931, two years after publishing his breakdown theory, Grossman qualified his idea more, emphasizing that he did not believe that capitalism had to collapse "by itself" or "automatically"; the objective law of breakdown had to be combined with the subjective factor of the class struggle.^[52]

Other orthodox Marxists or economists inspired by Marx (including [Karl Kautsky](#), [Mikhail Tugan-Baranovsky](#), [Nikolai Bukharin](#), [Rudolf Hilferding](#), [Rosa Luxemburg](#), [Vladimir Lenin](#), [Otto Bauer](#), [Fritz Sternberg](#), Natalia Moszkowska, [Paul Sweezy](#), [Kozo Uno](#) and [Makoto Itoh](#)) provided alternative [crisis theories](#), focusing variously on the anarchy of capitalist production, sectoral disproportions, underconsumption and realization problems, labor-shortage and population pressures, credit insufficiency, excess capital and wages squeezing profits.^[53] According to Professor [Costas Lapavitsas](#), "both Hilferding and Lenin – indeed most of the leading Marxists of their time – treated crises as complex and multifaceted phenomena that could not be reduced to a simple theory of the rate of profit to fall. The notion that the normal state of capitalist production is to malfunction due to a persistently excessive organic composition of capital, or even due to falling 'surplus' absorption, would have been

alien to classical Marxists."^[54] Implicitly or explicitly, it was argued by these Marxist economists that economic crises, although they are a fairly regular occurrence in the last two centuries of capitalist development, do not all have exactly the same causes. There are all sorts of things that can go wrong with capitalism, throwing the markets out of kilter.^[55]

Howard & King claim that the TRPF was mostly "neglected" in Marxist theoretical discussions during the 1920s, and Callinicos & Choonera claim that the TRPF actually played a "marginal" role in much of the whole history of Marxist economics.^[56] During the [British general strike of 1926](#), for example, there was no evidence of English discussion about the TRPF. In the non-English Marxist literature, however, the TRPF did get plenty attention, except that the TRPF was never seen as the "be all and end all" of crisis theory. When [Henryk Grossman](#) published his famous 1929 breakdown theory, he intended to correct faults in the 1920s theoretical debates among [Nikolai Bukharin](#), [Otto Bauer](#), [Rosa Luxemburg](#), [Fritz Sternberg](#) and others about the dynamics of [capitalist growth](#). "Unlike Marx's diagrams, Bauer's diagram includes the rising organic composition of capital, a falling rate of profit, a rising mass of profit, and the faster development of Department I – the department that produces the means of production – relative to Department II – the branch that produces the means of personal consumption."^[57]

Today some mono-causal Marxist theorists still attribute crises to one single factor (principally, the TRPF),^[58] while others have argued for a *multi-causal* approach in which a distinction is drawn between the "triggers" of the crisis, its deeper underlying causes, and the concrete manifestation of crises.^[59]

The transformation problem

Main article: [Transformation problem](#)

The Marxian controversy about the so-called [transformation problem](#) began with [Friedrich Engels](#)'s preface and supplement to his edition of Marx's third volume of *Capital* in 1894.^[60] Engels realized very well, that there were unsolved issues in Marx's theory of value and capital, and he had previously invited other economists to help solve them.^[61] Already before the third volume was first published, [Mikhail Tugan-Baranovsky](#), German socialists like [Conrad Schmidt](#) and various Italian authors were critically assessing the implications of Marx's theory.^[62] But Engels himself died in 1895. Subsequently, [Eugen von Böhm-Bawerk](#)^[63] and his critic [Ladislaus Bortkiewicz](#)^[64] (himself influenced by [Vladimir Karpovich Dmitriev](#)^[65]) claimed that Marx's argument about the distribution of profits from newly produced surplus value is mathematically faulty.^[66] This gave rise to a lengthy academic controversy.^{[67][68][69][70][71][72]} Critics claimed, that Marx failed reconcile the [law of value](#) with the reality of the distribution of capital and profits, a problem that had already preoccupied [David Ricardo](#) – who failed to solve it. Although Marx himself had noted this problem in *Capital, Volume I*^[73] and said that "many intermediate terms are still needed" to solve it, and although Engels suggested that Marx had indeed solved it, critics alleged Marx never delivered a credible solution in the posthumous third volume. Specifically, critics claimed that Marx failed to prove that labor-time is the regulator of product-prices within capitalist production, since he failed to demonstrate what exactly the quantitative connection was between the two. As a corollary, Marx's theory of the TRPF was undermined as well, since it was based on a necessary long-term evolution of value-proportions between the composition of production capital and the yield of production capital.

According to the classical Ricardian economists, solving the transformation problem was an essential prerequisite for a credible theory of prices – a theory that would genuinely explain the relationship between the different variables determining prices, and the effects of changes in those variables. The theory of economic value was the foundation for the theory of prices, because prices could not be understood and explained without assumptions about economic value. Hence, a version of the transformation problem already existed in Ricardian economics, before it existed in Marxian economics, and, according to Marx, Ricardo's inability to solve it, directly contributed to the break-up of the Ricardian school, and to the demise of the [labour theory of value](#).^[74] Thus, the subsequent debate centered on whether Marx had really solved a fundamental problem of the classical labour theory of value which Ricardian economics had failed to solve, so far, or whether there was an alternative (Ricardian) solution preferable to Marx's. Prof. [Anwar Shaikh](#) states that, among economists, this issue divided

supporters of the labor theory of product-value for more than a century.^[75] What made the 20th century debate especially complicated and confusing was that Ricardo's theory and Marx's theory were often mixed up with each other; it was often unclear or controversial, what the exact differences between them were. In criticizing and reworking Ricardian theory, Marx had kept some of its ideas, but also altered the whole theoretical frame of reference, creating a new social and economic [ontology](#).^[76] Some Marxians, like Chris Arthur, aim to reconstruct Marx's dialectical transformation argument in order to cleanse it from all "Ricardian residues" – the suggestion being, that Marx himself had never completely freed himself from Ricardianism in the economic manuscripts which he did not publish himself.^[77]

The German transformation controversy helped to inspire [Wassily Leontief's input-output economics](#)^[78] (Bortkiewicz co-supervised the young Leontief's doctoral studies together with [Werner Sombart](#)^[79]) but it remained a relatively obscure academic dispute, until [Paul Sweezy](#) drew attention to it in his widely read 1942 book *The Theory of Capitalist Development*.^[80] Bortkiewicz's interpretation of Marx was very influential in the second half of the 20th century, in Marxist, neo-Ricardian and Post-Keynesian circles.^[81]

Marx himself famously stated in chapter 9 of *Capital, Volume III* that he had previously assumed that, to the purchasing capitalist, the value of a commodity bought was equal to its cost-price.^[82] In reality, he argued, this cost-price is itself a market price based on a [production price](#) (a cost-price + a profit) of the supplying capitalist producer: the input purchasing price of one capitalist is the output selling price of another capitalist. So the acquisition cost-price of inputs itself corresponded to both a value and a surplus value, and the market prices of inputs might diverge from the labor-value of inputs. Hence, said Marx, if the cost-price of a newly produced output is assumed to be equal to the *labor-value* of the inputs used up in producing it, "it is always possible to go wrong"^[83] in the calculation of the output production price (because input acquisition prices and input labor-values could diverge, given that inputs could be bought above or below their value, and given that their inventory value could change during the production process^[84]).

In his simple model, Marx straightforwardly equated – for the sake of argument – the total cost-price of the new output with the total production capital advanced, abstracting from many intervening variables such as capital depreciation and turnovers.^[85] Marx furthermore assumed, that at the point where a new output had been produced, its cost-price (a sum of money-capital representing materials costs, wage costs and operating costs) was a given, unchangeable datum,^[86] and he considered that price-value discrepancies of inputs bought were irrelevant to his analysis, since it was the value of this new output (and not the value of capital advanced) that was being related to a general price level and a general profitability level in the markets where the output was sold.

The cost-price of new output was not based on a hypothetical "labor-value" of inputs, but based on what the producers actually paid for the inputs that were used up to create their outputs. The difference between the selling price and the cost price of the new output sold, was the surplus value realized as profit by the producer of that output, and the argument was, that this profit would normally (assuming ordinary competition) tend to gravitate to an amount reflecting the average profit rate on capital. If businesses could not reach a baseline profitability, they would be driven out of business sooner or later, or they would be taken over by another business and restructured, so that they did become sufficiently profitable. Inversely, if businesses overcharged for their commodities to obtain more profit, fewer people would buy them, and they would suffer decline as well. Marx then examined what the division of the total newly produced surplus value would be, among producers with varying capital compositions, on the assumption of a uniform profit rate established by free competition.^[87]

Marx knew very well that a uniform profit rate (a "general profit rate") did not truly exist in the real world, except as a tendency in the competitive process, as a norm for acceptable returns, or as a statistical average.^[88] But he wanted to examine the share-out of newly produced surplus value in its simplest and purest forms, abstracting from all kinds of variability of circumstances that would make his own calculation extraordinarily complex (see further [prices of production](#)). The formation of a normal rate of profit, common to most producers, defined the basic parameters of competition, and thereby it defined the main developmental dynamic of the

capitalist production system.^[89]

The theoretical problem that nevertheless remained in Marx's story, according to von Bortkiewicz and other classical Ricardian theorists, was how the input and output results of interacting sectors of industry could be modeled in aggregate, so that total product values and total production prices would exactly match up in aggregate, and the price-value divergences at the micro-level would all cancel out at the macro-level.^[90] For Bortkiewicz, this redistribution was a purely mathematical problem. The equality of total prices and total values (Bortkiewicz talks about "price units" and "value units") could be understood to mean that they were both equal to a given quantity of gold, or a given quantity of labor hours.^[91] A perfectly consolidated result was required as a proof that product-prices represented *merely and only* a quantitative redistribution of product-values. In turn, that Marxian quantitative proof would, in Bortkiewicz's interpretation, confirm logically that there was a *determinate* relationship between product-values and product-prices, since every value quantity would map to a price quantity and, in aggregate, every positive price-value deviation would be balanced out exactly by a proportional negative price-value deviation. Marx's system of categories for describing the accumulation of capital from production would be validated as logically sound, and as meeting a standard of scientific rigour.

The relevant point here was, that price-value divergences occurred both with regard to inputs to production and with regard to outputs; but Marx himself had ignored the input price-value divergences in his simple quantitative illustrations of the distribution of profit.^[92] Since outputs become inputs, and inputs become outputs, critics alleged that unless input values are transformed in the calculation as well, the absurd mathematical effect in the model is that capitalist producers selling a good obtain a sale price that differs from the price paid by capitalist producers buying the same good.^[93]

In a static three-sector model, it proved mathematically difficult to join up five ideas. These five ideas were:

- All production capitals attract the same profit rates, so that profits are distributed in proportion to the size of the capitals (the so-called "uniform profits" assumption).
- Production units or sectors each have a different [organic composition of capital](#).
- The sum of production prices is equal to the sum of product values.
- The total profit-money distributed to production units is equal to the total surplus value produced.
- The rate of profit in price terms, is equal to the rate of profit in value terms.

The input-output equations could be made to work, only if additional assumptions were made.^[94] But even in a dynamic model, it can be shown mathematically that assumptions (1), (3) and (4) have a crippling effect on the plausibility of longterm quantitative results obtained with the model. However, what ought to be concluded from this modelling exercise, still remains very much in dispute (is the theory wrong, are the concepts and assumptions wrong, is the interpretation of the concepts wrong, is there a big difference between the model and the real world, etc.). The math of the classical transformation problem is rather simple,^[95] the real difficulty is about whether the economic relationships involved are adequately conceptualized, and how we could know that. Both Marx^[96] and von Bortkiewicz^[97] implicitly admitted that assumptions (1), (3), (4) and (5) [cannot be true](#) in the real world, and this casts doubt on the importance or relevance of the classical transformation problem.

Bortkiewicz's analysis nevertheless raised the very important question of what the point of Marx's value theory is. Is there any real difference between Marx's "values" and theoretical prices?^[98] If there is no real difference, neo-Ricardians argued, then Marx's value theory is redundant; one could then just as well make all the same sorts of arguments in price terms.^[99] The advantage seemed to be, that there exists no "transformation problem" of converting values into prices through a quantitative adjustment anymore, and that value theory could be replaced with equilibrium theory to explain prices, since "value" then simply stood for "equilibrium prices" (such as the Smithian or Ricardian "natural prices"). One could then create a system of equilibrium prices for the critical variables involved in production, to explain price relationships. However, then Marx's theory of the formation of a general rate of profit, and his theory of the TRPF, would no longer be valid.

This trend of thought is exactly what happened in leftwing economics, during the second half of the 20th century (see below), although a minority of Marxists – inspired by [Isaak Illich Rubin](#) and [Roman Rosdolsky](#) – continued to defend Marx's theory of the [forms of value](#) (somewhat confusingly, however, many value-form theorists^[100] also reject Marx's own value theory). In classical Ricardian economics, the theory of economic value still played an important role, but in neo-Ricardian economics there exists only a theory of prices; the role of "value" is reduced to that of an aggregation principle, but is not a real determinant of the rate of profit.^[101]

There are, however, also Marxists who think that value-theory is still a useful "add-on" to ordinary post-Keynesian price theory, because value-theory penetrates through the "appearances" of [commodity fetishism](#) to the "essence" of exploitation.^[102] According to this interpretation, price-relationships express the observable surface appearance of what happens in the economy, while value relationships express the unobservable essence of what happens.^[103] But there is no necessary connection between price-relationships and value-relationships, quantitative or otherwise, because the value theory models and the price theory models exist at qualitatively different levels of abstraction. It then follows quite logically, that value theory cannot offer any substantive explanation of price movements (including empirical profits), whether in theory or in reality^[104] and that price theory is a completely separate area of concern. The three main objections to this approach are (1) that it makes the theory of value an untestable, metaphysical theory, (2) that the observable/unobservable distinction being drawn is false, since some prices are observable, while others are not (since they are [inferred or derived magnitudes](#)), and (3) that general talk about "levels of abstraction" is vacuous, unless the exact limits of application of the abstractions can be specified clearly. Thus, if Marxists want to cling sentimentally to value theory regardless of facts and logic, this cannot be called a "science."

Cycle or secular long-run trend

One dispute which has never been finally resolved is whether the TRPF should be interpreted as a cyclical tendency, or as a secular long run trend.^[105] [Geert Reuten](#) from the [University of Amsterdam](#) has argued that there is evidence that Marx originally believed in a long run secular tendency, but that, later on, he changed his position to a cyclical tendency.^[106] In contrast to this view, [Anwar Shaikh](#) from the [New School in New York City](#) has argued that Marx meant the TRPF as a secular long run trend.^[107] A cyclical tendency and a long-run tendency could also be combined in one theory, where a series of cycles shows a gradual fall in the average rate of profit, despite an upturn in each cycle.

Following Michael Heinrich,^[108] [David Harvey](#) criticized Engels's editing of *Capital, Volume III*, and emphasized in a conference text that Engels himself inserted the sentence "In practice, however, the rate of profit will fall in the long run, as we have already seen."^[109] The suggestion is, that in the text preceding Engels's inserted sentence, Marx himself had never said anything about such a long-run falling tendency. Harvey's view contrasts with Marx's preceding text, in which Marx says that as the capitalist mode of production advances, its general rate of profit must steadily decline, "since the mass of living labour applied continuously declines in relation to the mass of objectified labor [i.e. means of production] that it sets in motion."^[110] However, Michael Heinrich argues that Marx in his old age paid no attention anymore to the falling tendency, suggesting it was no longer important to him.^[111]

First empirical tests

In the 1870s, Marx certainly wanted to test his theory of economic crises and profit-making econometrically, but adequate macroeconomic statistical data and mathematical tools did not exist to do so.^[112] Such scientific resources began to exist only half a century later.^[113] In 1894, [Friedrich Engels](#) did mention the research of the émigré socialist Georg Christian Stiebeling, who compared profit, income, capital and output data in the U.S. census reports of 1870 and 1880, but Engels claimed that Stiebeling explained the results "in a completely false way" (Stiebeling's defence against Engels's criticism included two open letters submitted to the [New Yorker Volkszeitung](#) and [Die Neue Zeit](#)).^[114] Stiebeling's analysis represented "almost certainly the first systematic use of statistical sources in Marxian value theory."^[115]

Although [Eugen Varga](#)^[116] and the young [Charles Bettelheim](#)^[117] already studied the topic, and [Josef Steindl](#) began to tackle the problem in his 1952 book,^[118] the first major empirical analysis of long-term trends in profitability inspired by Marx was a 1957 study by Joseph Gillman.^[119] This study, reviewed by [Ronald L. Meek](#),^[120] was extensively criticized by Shane Mage in 1963.^[121] Mage's work provided the first sophisticated disaggregate analysis of official national accounts data performed by a Marxist scholar.

Long waves in average profitability

Starting off with pioneering work by [Ernest Mandel](#) from 1964,^[122] various attempts have been made to link the [long waves of capitalist development](#) to long-term fluctuations in average profitability.^[123] Mandel's influential Phd thesis *Late Capitalism* (in German 1972, English version 1975) was a critical response to [Henryk Grossman](#)'s theory. Like Henryk Grossman, Mandel was convinced of the centrality of profitability in the trajectory of capitalist development, but Mandel did not believe that Marx's [reproduction](#) models could be used to create a theory of capitalist crises.^[124] In Grossman's profitability model, there was only a series of business cycles and, sometime after the 34th cycle, a general breakdown of capitalism, because insufficient surplus value was being generated.^[125] Leaving aside the issue of the validity of Grossman's model, his picture of capitalist development did not explain historical phases of faster and slower economic growth lasting about 25 years or so. After [World War 2](#), a long boom occurred, instead of a deepening capitalist crisis which many Marxists had expected. That was what Mandel wanted to explain^[126] (Mandel's and Grossman's growth models both ignore the accumulation of non-productive capital assets and profits not arising from new surplus-value).

Mandel's interpretation was strongly criticized by [Robert Rowthorn](#).^[127] Although Mandel's profit theory was enormously more complex than Grossman's profit theory, this complexity itself became problematic: there were so many interacting "semi-autonomous variables" in Mandel's theory, that observable empirical trends could be attributed to any number of interacting variables; this meant that no particular result *necessarily* followed from the theory, and that the [explanans](#) (that which explains) became confused with the [explanandum](#) (that which has to be explained). Thus, "It is never clear, for example, whether Mandel considers capitalism has an inherent tendency toward overproduction which periodically *expresses* itself in a falling rate of profit, or whether overproduction itself is *caused* by a falling rate of profit."^[128]

Mandel replied to such criticisms in his 1978 essay "Marxism and the crisis", where he argued this dichotomy does not make sense, because it is based on a false social ontology.^[129] Overproduction and overaccumulation^[130] were, he argued, inseparable phenomena, and surplus value could not be realized as profit income unless output was sold; consequently the average rate of profit and the rate of market expansion mutually determined each other. He maintained that falling profits were only one factor in the recurrent sequence from boom to slump. He argued that the basic reason why capitalist crises occurred is that capitalism is a system of production run by competing producers, based on private property.^[131] In this system, "what is rational from the standpoint of the system as a whole is not rational from the standpoint of each great firm taken separately, and vice versa."^[132] According to Mandel, that also explained why bourgeois macroeconomics and microeconomics contained quite different principles and concepts of economic behaviour (in contrast to Marx's economics, where macro and micro share the same concepts).^[133] Thus, in every branch of economic activity, capitalist business could never escape from recurrent problems of overinvestment and underinvestment, which periodically culminated in general crises.^[134] Following [György Lukács](#), Mandel portrays capitalist rationality as a "contradictory combination of partial rationality and overall irrationality."^[135] It is not that competing businessmen are "irrational", far from it, but that their own "instrumental rationality" and "value rationality" (in a Weberian sense) differ from the functional logic of capitalism as a system, and therefore the two run into serious conflicts at times - leading to crises.

In a 1985 article, reprinted as an appendix in the last French edition of *Late Capitalism*, Mandel tried to defend his interpretation against accusations of vulgar eclecticism.^[136] His final view was that "...under capitalism, the fluctuations of the average rate of profit are in a sense the seismograph of what happens in the system as a

whole... that formula just refers back to the sum-total of partially independent variables, whose interplay causes the fluctuations of the average rate of profit".^[137]

In the modern epoch of [financialization](#), the main criticism of Mandel's idea is that overaccumulation can combine with underproduction, if it is safer (or more profitable) to invest in solidly insured non-productive assets.^[138] [Martin Wolf](#) states: "the world economy has been generating more savings than businesses wish to use, even at very low interest rates."^[139] [Joseph Stiglitz](#) similarly argues that from the 1990s onward, banks lent more and more money to investors who mainly did not use it to create new business, but to speculate in already existing assets for capital gain, thereby pushing up asset prices.^[140]

In defense of the theory that the [organic composition of capital](#) does rise in the long term (lowering the average rate of profit), Mandel claimed that there does not exist any branch of industry where wages are a growing proportion of total production costs, as a secular trend. The real trend is the other way: toward semi-automation and full automation which lowers total labor costs in the total capital outlay.^[141] Critics of that idea point to low-wage countries like China, where the long run trend is for average real wages to rise. For example, the Chinese Communist Party aims to double Chinese workers' wages by 2020.^[142]

Monopoly profits

Inspired by [Josef Steindl](#) and Baran's earlier work, [Paul Baran](#) and [Paul Sweezy](#) postulated in their 1966 work *Monopoly Capital* that there existed a "law of increasing surplus" which counteracted the TRPF within a capitalism that had fundamentally changed.^[143] Just after the book was published, the average industrial rate of profit in most advanced capitalist countries began to fall, and continued to fall substantially for about 5–7 years.^[144]

The official orthodox Marxist–Leninist theory of [state monopoly capitalism](#) ("stamocap")^[145] similarly suggested that in the 20th century epoch of the "general crisis of capitalism", the state and its public funds acted as guarantor and promotor of stable monopoly profits by corporations, counteracting the TRPF.^[146] The general thrust of monopoly theories is that profitability does not fall, because the ordinary laws of the capitalist market are overruled by the state and monopolization.^[147] However, [Ben Fine](#) and Laurence Harris combined the TRPF with state monopoly capitalism theory at a higher level of [abstraction](#): "[The TRPF] is not a law which predicts actual falls in the rate of profit (in value or price terms)".^[148] At an even higher level of abstraction, Michael A. Lebowitz postulated "the inner tendency of Capital to become one".^[149] [Anwar Shaikh](#) however recently made the case that monopoly capital never truly existed, since normally speaking business cannot totally monopolize a market, or evade competition altogether; as a logical corollary, business cannot evade the TRPF.^[150]

Also inspired by [Josef Steindl](#)'s analysis, [Ernest Mandel](#) argued that if corporations monopolizing product markets can evade price competition to a considerable extent, they can also evade the general tendency for differences in profit rates to level out (in the direction of an average rate).^[151] Even if monopoly profit rates fell, they would usually remain higher than the profit rates of small and medium-sized firms.^[152] Sure, the monopolists could raise their prices only within certain limits, beyond which they would attract competitors (including other monopolists) able to supply alternative products at a lower price. Nevertheless, in reality, there existed not one, but two kinds of "average profit rates" in capitalist production: a higher one for corporations in the monopolized sectors of product markets, and a lower one for smaller firms in the non-monopolized sectors.^[153]

The break-up of the postwar boom of 1947–1973

In the 1970s, there were two main debates about profitability among the Western New Left Marxists, one empirical, the other theoretical. The empirical debate concerned the causes of the break-up of the long [postwar boom](#). Orthodox Marxists like [David Yaffe](#), for example, argued that the cause was the TRPF, while other Marxists (and non-Marxists) argued for a "profit squeeze" theory.^[154]

According to the profit squeeze theory, profits fell essentially because, in the course of the long boom, unemployment had reduced to a low level. This allowed workers to pick and choose their jobs, meaning that employers had to pay extra to attract and keep their staff. The increased labor costs therefore "squeezed" profits. This could be sustained for some time, while markets were still growing, but at the expense of accelerating price inflation. In the 1970s, employers began to scale back their investments in production, and there was enormous political pressure on the state to curb wage increases and reduce price inflation, bringing the long post-war boom to an end. Orthodox Marxists however argued that the main cause of falling profits was the rising [organic composition of capital](#), and not wage rises. On this view, the falling average rate of profit on production capital in the end choked off the growth of the total mass of profit, leading to a stagnation of business investment and rising unemployment.

Yaffe became quite famous. In a 1980s satire about the British far Left, John Sullivan stated that Yaffe had done "sterling work on the velocity of the falling rate of profit, and has almost got it down to the nearest foot per second."^[155] Yaffe claimed that "It is precisely the crisis of profitability that makes a growing state expenditure necessary."^[156] This idea was strongly criticized by Ian Gough.^[157]

Neo-Ricardian views

The theoretical New Left debate in the 1970s was a clash between orthodox Marxists believing in a labor theory of value^[158] and neo-Ricardian socialists inspired by [Piero Sraffa](#).^[159] The neo-Ricardian socialists, basing themselves on the ideas of [Maurice Dobb](#), [Ronald L. Meek](#), [Michio Morishima](#), and [Ian Steedman](#), believed that Sraffa's models had made Marx's value theory redundant, and that Marx's TRPF theory was mathematically incoherent once it was rigorously modeled.^[160] Sraffa's theory was not incompatible with some kind of labor theory of value as such, as several neo-Ricardians emphasized,^[161] but it was incompatible with Marx's TRPF.^[162] This debate still continues.

The overall Marxist criticism of the neo-Ricardian socialists was that they treated Marx as if he was a Sraffian. But, they claimed, Marx wasn't a Sraffian, because Marx's concepts were quite different.^[163] The Sraffians believed that if Marx's theory cannot be restated in a mathematically consistent and measurable way, it has no scientific validity. Since Marxists allegedly failed to formalize Marx's theory in a convincing way, the Sraffians dropped it, although they might still have socialist sympathies.

[Anwar Shaikh](#) among others replied, that regrettably the mathematical formalizations offered by neo-Ricardian theorists to interpret Marx's idea were really more a sleight-of-hand, since, in the process of modelling, highly questionable assumptions were introduced which had nothing to do with Marx. Moreover, one could use the same mathematical techniques with different assumptions to compute results that were quite consistent with Marx's theory.^[164] On his website, [Andrew Kliman](#) adopted the motto: "I ain't going to work on Piero's farm no more."

IS/SWP (UK) interpretation

In the 1990s, a leader of the British [Socialist Workers Party](#), [Chris Harman](#), advanced a reading of Marx that sees economic crisis as the main effective countervailing factor to the TRPF, but which places limits on its effectiveness as the capitalist system ages and units of capital become larger and more interlinked.^[165] However, [David Harvey](#) mentions that in the *Grundrisse*, "Marx lists a variety of other factors that can stabilize the rate of profit 'other than by crises'".^[166] Since the 1970s, the International Socialists have staged a theoretical struggle against [underconsumptionism](#), regarded as a reformist ideology, and reaffirmed the TRPF as the true revolutionary theory.^[167]

More empirical studies

Since the theoretical disputes failed to clinch the argument, more scholars raised the question of whether the theory of the falling rate of profit corresponded to the facts. They wanted to "count the horse's teeth" empirically

to shed light on the issue.

In the United States, pioneering empirical research on the average rate of profit was published from 1979 onward by Edward N. Wolff^[168] and Thomas Weisskopf,^[169] followed by Anwar Shaikh.^[170] After some articles, Fred Moseley also published a booklength analysis of the falling rate of profit.^[171] Wolff and Moseley together edited an international study.^[172]

In the 1980s, the Italian scholar Angelo Reati, who worked for the [European Commission](#) in Brussels and who tried to combine Marxian, neo-Ricardian and Post-Keynesian approaches, analyzed industrial profitability data for Italy, the UK, France, and Germany. This resulted in a series of papers, and a book in French.^[173] Gérard Duménil, Mark Glick and José Rangel studied the empirical tendency of the rate of profit to fall in the United States using a variety of sources.^[174]

An important econometric work, *Measuring the Wealth of Nations*, was published by [Anwar Shaikh](#) and Ertuğrul Ahmet Tonak in 1994.^[175] This work sought to reaggregate the components of official gross output measures rigorously, to approximate Marxian categories, using some new techniques, including input-output measures of direct and indirect labor, and [capacity utilization](#) adjustments. Shaikh and Tonak argued that the falling rate of profit is not a short-term trend of the business cycle, but a long-term historical trend. According to their calculations, the Marxian rate of profit on production capital fell throughout most of the long boom of 1947–1973, despite an enormous expansion of the volume (mass) of profit.

The celebrated New Left historian [Robert Brenner](#) from California has also attempted to provide an explanation of the postwar boom and its aftermath in terms of profitability trends.^[176] Brenner's interpretation was heavily criticized by Anwar Shaikh, who argued that it is not really credible from an econometric or theoretical point of view.^[177] According to Shaikh, Brenner had an inflated view of American factories, to the point where Brenner believed that the profitability of US manufacturing determined the destiny of the whole world economy. In reality, US factory production wasn't that big.

A lot of detailed work on long run profit trends was done by the French Marxist researchers Gerard Duménil and Dominique Lévy.^[178]

In Britain, the Oxford group around [Andrew Glyn](#) used mainly OECD-based profitability data to analyze longterm trends.^[179]

A lot of sophisticated empirical research on profitability was done by the group around Prof. Lefteris Tsoulfidis, based at the [University of Macedonia](#).^[180]

This type of research was replicated by Marxian scholars in many other countries around the world,^[181] who often introduced their own technical refinements in the data sets.^[182]

A further development in the early 21st century was the attempt to compute the trend in a "world rate of profit" by [Minqi Li](#) and a group of Chinese researchers.^[183] Michael Roberts subsequently tabled his own "world rate of profit" trend estimates in 2012.^[184]

More theoretical works

In the course of the 1990s, many leftist academics lost interest in Sraffian economics. Although he had written a few articles and edited the collected works of [David Ricardo](#), Sraffa had authored only one book himself,^[185] a neo-Ricardian analysis about the distribution of value-added from production (Sraffa calls net value-added the "surplus"^[186]) which is divided or distributed among workers and capitalists. While Sraffa had provided an alternative to the problematic [labor theory of value](#) of the orthodox Marxists, while undermining the [marginalist theory of capital](#), Sraffa's book provided no answers to many important contemporary macroeconomic issues. It was not designed for that purpose. For example, "The Sraffa system, like many stationary-state general

equilibrium models, contains no good which, uniquely, possesses all the important features of money."^[187] Instead, many Marxists and leftists became more focused on the political economy of [Michał Kalecki](#), who tried to combine Marxian and Keynesian economics in a more realistic way, without relying on any labor theory of value.^[188] Kalecki also believed in a cyclical tendency for profits to fall, but more as a result of the changing balance of power between the working class and the capitalist class, or changes in capital intensity.^[189]

In 1994, Stephen Cullenberg published a book on the falling rate of profit which reviewed the whole controversy to date.^[190] In 1997, the Italian Marxian economist Riccardo Bellofiore released an edited volume of essays by leading Marxist scholars on *Capital, Volume III* which reappraised Marx's text in the light of the previous criticisms.^[191] Bellofiore also helped to revive interest in the profit theories of [Hyman Minsky](#),^[192] which briefly became popular again in the 2007–2009 crisis. The crisis was called a "[Minsky moment](#)".^[193] Increasingly leading Marxist scholars began to focus on the importance of debt-driven accumulation for the average rate of profit.^[194]

Reviving and developing ideas first mooted in the 1970s^[195] and 1980s,^[196] proponents of the [Temporal single-system interpretation](#) (TSSI) such as [Andrew Kliman](#), Alan Freeman, Paolo Giussani and Guglielmo Carchedi have argued from the 1990s onward that the arguments by [von Böhm-Bawerk](#), [Bortkiewicz](#), and [Okishio](#) do not refute Marx's case. Kliman argues in *Reclaiming Marx's Capital* (2007) that the apparent inconsistency of Marx's case arises out of a misreading of Marx through the prism of [general equilibrium theory](#). Once the operations of capitalist production are interpreted as "temporal and sequential" (as opposed to a "simultaneist" model where inputs and outputs are valued simultaneously, so that total input and total output valuations are always exactly equal) and "single-system" (where values and prices always co-exist, and are co-dependent, not separate systems), it is argued that the [transformation problem](#) disappears, and that the TRPF can no longer be dismissed on logical grounds.^[197]

The modern TSSI approach has been criticized by other Marxist and neo-Ricardian scholars including Gerard Duménil, [Duncan K. Foley](#), Michel Husson, [David Laibman](#), Dominique Lévy, Simon Mohun, Gary Mongiovi, [Ernesto Screpanti](#), Ajit Sinha, and Roberto Veneziani.^[198] The main idea of these critics is, that if equilibrium is let go of, then capitalism is an unpredictable chaos, and no coherent theory of prices or profits is possible anymore.^[199]

The reply of TSSI theorists is, basically, that the concept of equilibrium itself is confused with (1) the concept of continual (and haphazard) market adjustment, and (2) the concept of socio-economic stability.^[200] Supply and demand may continually adjust to each other without ever being in equilibrium, other than momentary coincidences, and the lack of a perfect match between supply and demand does not necessarily prevent social stability, as long as enough workers turn up for work each working day to produce more capital. Capitalist equilibrium means "business as usual" for capitalists, and "back to work" for workers. But "business as usual" does not mean market balance. Disequilibrium is precisely the life of the market, and equilibrium is the life that the market observably never had. Marx himself had never argued that capitalist society is "held together" or "balanced out" by the market; instead, what held society together was the [relations of production](#), i.e. the mutual dependencies arising out of the necessity to produce and reproduce human life co-operatively, within the framework of a system of property rights enforced by the state. Thus, a consistent Marxian theory of prices and profits is claimed to be possible, without assuming that the market, the economy or the society spontaneously gravitate to an "equilibrium state" of economic harmony through the "price mechanism". In this view, the idea of equilibrium is itself poorly conceptualized by economists, and given a magical, arcane power which it does not really have, once we understand the conjuror's trick.^[201]

21st century Marxist controversies

[Globalization](#) and [financialization](#) have changed the way capitalism operates in the 21st century, and that has raised new points for debate about the rate of profit which had been overlooked, or regarded as less significant, in the 20th century.^[202] According to the orthodox Marxist economist Costas Lapavistas, financial profit is

distinct from normal capitalist profit.^[203] Nasser Saber states that "Finance is a specialized branch of economics precisely because the movement of securities prices is separate from (albeit not unrelated to) the dynamics of the physical capital."^[204] By 2007, the US financial sector was said to be generating more than 40% of US corporate profits.^[205]

Production capital versus society's total capital

One issue concerns the relationship between the real economy (producing goods and services) and the financial economy (trading assets). Some argue,^[206] like Marx did, that the tendency of the rate of profit to fall applies only to the sphere of the capitalist industrial production of commodities, not to the whole capitalist economy. Thus, it is argued, it is eminently possible that while *industrial* profitability stagnates, average profitability in activities *external* to the sphere of industrial production *increases*.^[207] In fact, [Michael Hudson](#) claims that in the United States, only about a quarter of workers' gross wages is spent on the purchase of actual goods and services. All the rest is spent on the payment of rents and mortgages, retirement schemes and insurance, loans and interest, and various taxes.^[208] Costas Lapavistas adds to this insight that not just household liabilities, but also household assets have to be looked at: the rich 20% of the world's workers have substantial deposits and savings invested with banks and retirement funds, so that, on both sides of the ledger, they become fully dependent on finance capital.^[209] Since labor incomes rose strongly in rich countries along with population growth in the second half of the 20th century, very large savings became available in retirement funds, representing an additional source of capital invested for profit worldwide and increasing the economic power of the finance industry.^[210] In 2008, the world's total tradeable financial assets (stocks, debt securities and bank deposits) were estimated at \$178 trillion, more than three times the value of what the whole world produces in a year.^[211] In June 2017, the world's total public and private debt was estimated at US\$217 trillion, again more than three times the value of what the whole world produces in a year.^[212] If one assumes a grand-average net profit rate of 5% on this global debt, the profit made from global debt is roughly equal to the annual national income of China.^[213] This has created a world in industrialized countries that is very different from the orthodox classical revolutionary Marxist analysis of the [commodity](#), where workers simply exchange their commodity labor power for a wage to buy a bundle of consumable commodities with.^[214]

The accounting category of "gross output" suggests the production of things but, in reality, the major part of it nowadays refers to the value of "services"^[215] which often maintain, distribute or increase holdings of already existing assets, local or imported. This is especially true of developed capitalist economies. Investment in production is, according to Marx, one mode of [capital accumulation](#), but not the only one.^[216] Accumulating capital could be as simple as buying currency and subsequently selling it at a higher exchange rate (which happens on a grand scale nowadays – see: [Foreign exchange market](#)). Thus, even if the growth rate of industrial production slows or stagnates, asset and property sales may boom. Within certain limits, the income generated by an asset boom may indeed stimulate additional demand in particular sectors, until the boom collapses.

In advanced capitalist societies such as the United States, the stock of [constant capital](#) applied in private sector productive activities represents only about 20–30% of the value of the total physical capital stock, and perhaps 10–12% of total capital assets owned,^[217] and therefore it is unlikely that a fall in the industrial rate of profit could by itself explain economic crises. Marxists ignored this reality, because they tacitly assumed in their economic model that the economy consists just of factories, and that Marx's analysis of the capitalist mode of production was a complete analysis of the whole economy, which is not true. For example, the famous Marxist scholar [David Harvey](#) claims that "Money, land, real estate and plant and equipment that are not being used productively are not capital".^[218] In his original 2001 Phd thesis in economics, the leading Dutch Marxist Robert Went borrows an idea from Christian Palloix,^[219] and transplants the categories of [Capital, Volume II](#) summarily to the whole world economy. Went claims that there exist only three circuits of capital (commodity capital, money capital and production capital), even although, according to Marx himself, these circuits refer only to the capitalist mode of production.^[220] In Japan, [Kozo Uno](#) equated Marx's theory of the capitalist mode of production with the

theory of capitalist society.^[221]

Marxists also assumed that earnings from production must be either spent on consumption or reinvested in production, but that is in reality not the case.^[222] Modern **financial capitalism** has put into question traditional models of causal chains in the economy. The main reason for that is, that there now exists a large amount of capital in rich countries that is not invested in production, yet strongly influences the developmental pattern of production and consumption.^[223]

In *Capital, Volume I*, Marx analyzed the direct production process of capital: the activities which create new commodities sold for profit. But when he analyzes the circulation and **reproduction** of capital in the second volume, he begins to develop the category of society's total capital.^[224] In the third volume, the concept of the total capital of society is developed further, as it becomes apparent that there exist all kinds of capital funds and assets in society which are not directly related to production.^[225] Marx never completed his story with an analysis of the credit system as a whole, the housing market, international trade and public finance; his work was very much unfinished. Yet in a mature, developed capitalist society, such as it exists a century and a half after Marx's studies, it is typical that more capital assets exist outside private capitalist production than are invested inside it (excluding "human capital", a concept which Marx rejected^[226]). That is the end result of centuries of capital accumulation, mechanization, state-building, and restructuring business operations.

Profit statistics versus true business profit

Now that more is known about the trends in empirical measures of profitability, the debate focuses more on the underlying concepts.^[227] Simon Mohun states that the rate of profit is "most easily measured as the proportion of net output not returned as wages to the aggregate fixed capital stock" and that it is this rate of profit that is "generally used in empirical work".^[228] If the growth of the gross profit component of value-added (P) is statistically compared with the growth of the estimated fixed capital stock plus inventory holdings (C), it is certainly true that almost all measures will show that the ratio P/C does drop over time.^[229] The real value of the physical capital stock appears to grow faster in real terms than the real value of the operating surplus associated with that physical stock, in the long run.^[230] The same effect persists even when various different depreciation techniques are used.^[231] The data trend is analogous to a rising tendency of the capital coefficient, where in the course of time more and more capital is required to obtain each additional increase in output.^[232] The profit rate rises again, only after a major crisis or a war which destroys a sufficiently large amount of capital value, raises the rate of surplus value, and clears the way for new production techniques.^[233]

However, it is a simple accounting error to think, that the gross profit share of value-added is equal to true business profit,^[234] or that constant capital invested in physical assets (fixed equipment and inventories) represents the capital that an enterprise owns, other than a fund to pay wages, or that profits from product sales are the only net income the corporation has. That can be verified from any corporate balance sheet. If an enterprise borrows or leases capital for production, rather than investing its own, this affects the cost of capital that is tied up at any particular time. How the profitability of capital is accounted for, depends very much on who owns the capital, as distinct from who borrows it, or who uses it. So the rate of profit concept which Marx uses in his theoretical analysis of capitalist production (i.e. $S/(C+V)$) differs from the actual business concept of the rate of profit, because it disregards all sorts of financial and ownership issues, and because it concerns only part of the total circuit of capital.^[235]

While orthodox classical revolutionary Marxist academics are convinced that the statistical data show that profitability is falling, businessmen can often happily see their profits grow anyway, and have more real money in the bank. In theory they should have less money, but in practice they have more. That is because financial relationships between quantities of money (defined using a currency unit) can vary from the value proportions that exist between products or physical assets (defined in terms of the MELT, i.e. the monetary equivalent of labor time^[236]). If there is a significant drop in overall profitability, this will very likely also be reflected in data about the profit included in value-added, but that is only a rough indicator of the trend (the data quality may not

be very great). Official statistics include in value-added only the net value of new production; if a business makes money simply from selling an asset it has, or from asset appreciation, this is not normally considered "value-added", but property income.^[237] If that was not the case, then any kind of business income (or just about any kind of income) would represent value-added. It does not.

The original designers of gross product accounts (such as [Simon Kuznets](#), [Colin Clark](#), [Edward Fulton Denison](#) and [Richard Stone](#)) aimed precisely to exclude any [capital gains](#) (or other income from asset transactions and revaluations) from their measure of gross output, just like [transfer payments](#). They wanted a reliable standard measure that would indicate changes in the value of the net new addition to wealth per year or per quarter: roughly, the total sales revenue from production less intermediate costs, or, the value of total outputs produced less the value of goods and services used up to produce them, or, the sum of factor incomes directly generated by production.^[238] The issue then is, how exactly the grossing and netting must be done to obtain the value of total output, and it is done in a different way than business itself would do it (to eliminate non-production income/expenditure, ensure uniform valuation, and remove [double counting](#); from the point of view of national accounts, in fact real credits can become theoretical debits, and real debits can become theoretical credits).

Normally, true gross profit is larger than the profit component of value-added shown in official statistics, because true profit typically contains net property income, part of corporate officer's earnings and part of the depreciation write-off. The logical possibility exists that although the profit rate can indeed fall, if aggregate profit is measured only as the profit component of value-added, in reality it does not fall, or not as much, because:

- Organizations increasingly make money from trading in already existing assets which are not used by them to produce any new products and services with.^[239] Put differently, an increasing share of total generic profit income consists of net interest, net taxes, net capital gains, fees & royalties, and rents. This can happen because a lot of non-productive assets have been accumulated that are available for trade; second-hand physical assets, financial assets and properties are being traded; all sorts of things are traded internationally, taking advantage of currency and cost differentials; assets are being held via all kinds of special financial constructions to extract profit, etc. And, an increasing amount of interest payments, rents and capital gains have been excluded from [operating surplus](#) because, by statistical definition, they are not classified as production expenditure at all (i.e. they are not counted as value-added).^[240] Post-Keynesian researchers such as [Wynne Godley](#) and [Marc Lavoie](#) therefore tried to devise more adequate measures of the real financial profitability of companies.^[241] If a lot of capital is borrowed at a cost which is lower than the income obtained from reinvesting it in assets that appreciate in value, then a lot of profit income is earned which has nothing directly to do with creating new product value, and therefore is not counted as value-added. Instead, existing wealth is transferred from one set of owners to another.
- Generous [depreciation](#) write-off provisions or [depletion allowances](#) are in reality pure profit, or are at least partly a *de facto* profit component.^[242] The government may give tax incentives, provide guaranteed minimum prices, various economic subsidies etc. The statistical concept of "economic depreciation" ([consumption of fixed capital](#)) diverges considerably from actual depreciation^[243] – thus, economic depreciation is only an imputation, and is not directly derived from real gross revenue.^[244] If the total actual write-off is larger than economic depreciation, for example because of tax incentives for new fixed investment, it is likely that a component of profit income is being ignored in the statistical measure (there exists no other way to verify what the value of total net output is, than adding together the various components of factor income/expenditure).
- Nobody knows for sure what the true value of the total physical capital stock is, because all statistical estimates of that value involve theoretical extrapolations, with a margin of error which remains unknown unless very detailed and comprehensive surveys are done. What a fixed asset is worth becomes apparent only upon sale, yet even then assets may be sold above or below their true value – an important reason why statisticians adjust depreciation rates retrospectively and use price deflators. Even where detailed information is available, however, assessments of what an asset is worth still depend on the valuation criteria used. Those criteria often differ from the actual criteria used by business, since they

must conform to a standard statistical definition for measurement comparisons.^[245]

- When government statisticians compile [gross fixed capital formation](#) (GFCF) figures, they usually add in "ownership transfer costs" (fees, taxes, charges, insurance costs, installation costs etc.) associated with the acquisition of a fixed asset put in place. In the United States, these costs represent around 1% of GDP, or around 4.5% of total fixed investment.^[246] This inclusion may be perfectly valid for the purpose of a realistic gross investment measure, but when GFCF data is subsequently used to extrapolate the value of fixed capital stocks using the PIM (the [perpetual inventory method](#)), it includes elements which are, strictly speaking, not part of the value of fixed assets themselves. It appears "as if" ownership transfer costs are incurred and depreciated each year in the lifetime of fixed assets, since the value of these costs is carried forward in the perpetual inventory (unless a special adjustment is made). This has the effect of raising the fixed capital stock estimate above true value, cumulatively.^[247]
- The British researchers Richard Harris & Stephen Drinkwater also highlighted the problem that the PIM does not account for premature scrapping. The reason is that a constant depreciation rate (based on average asset lives) is applied for the stock; a discrepancy therefore arises between depreciated value and scrap value (often statisticians also fail to track what happens to fixed assets that are got rid of, and therefore the assets can be counted twice in the same year). The mathematical problem is that, given a constant depreciation rate, the effect of overstated stock values in the data will increase cumulatively across a series of years, unless a special adjustment is made. Thus, Harris & Drinkwater's 2000 study of fixed capital in British manufacturing 1970–1993 (23 years) found that, if the effect of capital scrapping which occurs due to plant closures is ignored from the 1969 benchmark onward, then this will lead to a 1993 capital stock estimate for plant and machinery which is 44% larger than it is when an appropriate adjustment is made for premature asset disposals.^[248] Another depreciation measurement problem is the accelerating replacement of fixed assets, particularly of computer systems, affecting estimated asset lives and therefore average depreciation rates. These two factors alone could, according to a 1997 OECD paper, make a difference of 10% to the estimate of the annual capital stock for some UK industries.^[249] Dutch and French statisticians suggested that if capital scrapping is ignored, capital stock results obtained with the PIM could be up to 20% larger than they probably are.^[250] New Zealand statisticians acknowledge explicitly that "PIMs may typically overstate the gross capital stock because of a failure to account for changing cyclical or accelerating rates of retirements".^[251] Although he is not a Marxist, [Thomas Piketty](#) usefully discusses many problems with the PIM.^[252] Unlike orthodox classical revolutionary Marxist academics, Piketty and [Zucman](#) did not use the PIM method to get a measure of the [capital stock](#), but instead used book values and corporate equity at market value.
- Remuneration packages for corporate officers, including stock options and profit-sharing, have been included under "compensation of employees" as a labor cost,^[253] rather than being included in gross profit.^[254] This fact is particularly important in the United States, because the incomes of corporate officers are often very large.^[255]
- Profit income from ordinary land sales, for example, is not included in official value-added, since land transactions do not result in additional land^[256] (See also [gross fixed capital formation](#), [differential and absolute ground rent](#) and [land grabbing](#)). Official fixed capital aggregates exclude the value of land, and no very reliable official estimates exist for the value of land, because of problems with credibly valuing land in a standard way for measurement purposes.^[257] If the world market prices for farm products rise, profit rates on land sales and commercial land values will increase; even if the number of land sales stays constant, the profit on land sales will increase.^[258]
- All sorts of differences occur in valuation practices used by business (historic cost, current replacement value, current sale value etc.) affecting [fair value](#) and GAAP-based accounting (among many other issues, if the profitability of a capital asset falls, the market value of the capital asset itself will fall as well, in response – irrespective of whether it is a physical asset or a financial asset, and irrespective of its acquisition cost; this reduces the fall of the profit rate).^[259] The valuations made are themselves influenced by the way price inflation is actually calculated using price indexes. Jochen Hartwig found that

the divergence in growth rates of real GDP between the U.S. and the EU since 1997 "can be explained almost entirely in terms of changes to deflation methods that have been introduced in the U.S. after 1997, but not – or only to a very limited extent – in Europe".^[260] See further [real prices and ideal prices](#).

- Tax-dodging techniques of various kinds, reducing reported profit income and the reported value of sales, or exaggerating costs (legal constructions, creative accounting techniques, offshoring, tax havens etc.).^[261] If tax data are used as a basis for statistical estimates, the reported amounts only reflect legal (fiscal) requirements and may well differ from the real situation.
- The use of (1) credit instruments, (2) capital insurance (derivatives) to protect capital value, and (3) various legal constructions which split out the ownership, control, financing, management and use of capital, which permits the costs, sales and profits to be arranged in ways more favourable to the enterprise or corporate group – often using various different business entities located in different countries.^[262]
- Statistical inclusions and exclusions, and survey accuracy problems which cause true profit to be underestimated.^[263]
- The problem with long-run time series for price aggregates is, that they often disregard many qualitative changes in the components of those aggregates, or, it is assumed that these qualitative changes have no real quantitative significance for comparative purposes. A variable is thought to stay qualitatively the same across time, when in reality it does not remain the same. [Michael Perelman](#), for example, shows that the content and economic meaning of capital aggregates can change considerably even within one decade or so. For example, the changing stratification of physical capital assets in the total capital stock, in terms of their age, exerts an independent influence on the productivity and profitability of enterprises.^[264]

The total result of all these (and many more) contemporary effects is that the growth of the profit volume is underestimated, and that the growth of the capital stock is exaggerated. The effect is that the overall profit rate seems to fall, although in reality it does not fall, or not nearly as much. In general, the orthodox revolutionary classical Marxist data constructs, based on value-added statistics and the PIM method, lack the scientific accuracy and reliability^[265] required to prove whether very long-run trends in profitability are up or down. At best, they offer an accurate indicator of shortterm trends (5–7 years). For example, no economist on record has ever denied that between 1967 and 1973 the average rate of profit fell in the OECD area, but there has been dispute about how much it fell, and why. [Michael Perelman](#) concluded that "Although empirical work is undeniably important, we should be more modest in the way we regard it. Quantitative analysis should drop any pretense of exactness".^[266]

Empiricist Marxists have rarely analyzed the differences between true business profit and statistical profit figures,^[267] but the empirical arguments about profitability among empiricist Marxists have to deal with five ideas:

(1) **True profit rate:** the real (but perhaps unknown or unstated) profitability of enterprises in terms of their true net gains, regardless of how they are reported.

(2) **Conventional profit rate:** the documented business rate of profit, about which information can vary between administrative transaction records, internal reports, published company reports, survey reports, tax reports and financial audits. Financial analysts use several dozens of standard profitability ratios to assess the income yield of investments, including the internal rate of return (IRR), the return on equity (ROE), and the return on invested (or total) capital (ROIC or ROTC).^[268]

(3) **Marxian profit rate:** Marx's theoretical rate of profit in industries, which measures the relationships between the value of surplus labor and the value of the material components of production capital.

(4) **Official statistical profit rate**: the profit rate based on the estimated magnitude of accounting categories that are defined according to a theory of social accounting^[269] (what matters here most of all, is whether an economic activity or transaction which generates income can be statistically counted as "production" or not).

(5) **Modified profit rate**: the statistical rate of profit as modified by Marxists, through various re-aggregations, recalculations and adjustments.

These five ideas turn out to be discrete variables, but the profit rate will go up or down, depending on the choice of measure. Andrew Kliman states in his book *The failure of capitalist production* that "I believe that there are many different legitimate ways of measuring rates of profit, and that none serves as an all-purpose measure. The most relevant rate of profit to consider always depends upon the particular question being addressed."^[270] This pluralist approach provides plenty possibilities for all kinds of different interpretations of all kinds of profit rates, depending on what the question is thought to be, to which a profit rate is supposed to be the answer.

The problem in measuring the statistical rate of profit is not just that "Among economic researchers there is a worldwide illiteracy in national accounting"^[271] but also that, because the structure of modern capitalism is different from half a century ago, a macroeconomics based on traditional national accounting concepts can no longer credibly represent economic activity.^[272] Although the financial industry now dominates capital flows in the world economy,^[273] US government statisticians admit frankly that "Unfortunately, the finance sector is one of the more poorly measured sectors in national accounts".^[274]

Radical economists point out, that a considerable portion of incomes and expenditures is not captured by the GDP concept because it falls outside the defined production boundary,^[275] while incomes/expenditures within the production boundary are allocated to categories which are substantially misleading.^[276] Not only are GDP data frequently revised after first publication, but the popular idea that GDP equals "the whole economy" is a fallacy.^[277] The more that the national accounts system has been revised across fifty years, and the more that economic theory and practice has changed, the less meaningful national accounts aggregates have become in capturing what is happening in reality. Analysts end up doing a lot of detailed disaggregate research to figure out what is going on, because the official national accounts aggregates don't tell them what they want to know.^[278] (more detailed data is increasingly available, because official statisticians make available digital [data warehouses](#), enabling [datamining](#)). The 2008 revision of the UNSNA standard national accounts tries to realign the system more with the modern realities of capital finance, but in the process, the original intention of the accounts to measure "physical" changes in wealth is, in some respects, superseded. According to OECD data for the year 2000, cited by the World Bank, *physical* capital represents only one-quarter of the capital stock of rich countries, and all the rest is "intangible capital".^[279] But UNSNA national accounts were originally never designed to measure the "intangible capital." The contemporary concept of "wealth creation" is substantially different from the concept that was entertained in the mid-20th century, among other things because who exactly and legally owns the wealth, often becomes a secondary issue in business.^[280] An asset may be held which generates profit income, but it could be a borrowed asset via-via, or an asset the value of which can be difficult to define. This can create new problems for statisticians seeking to estimate additions to wealth.

Orthodox Marxists such as Andrew Kliman have decried a "physicalist" interpretation of value along Sraffian lines,^[281] but their own interpretation of profit was (arguably) "physicalist", because, basing themselves on value-added statistics, they tacitly permitted only the existence of profits that appear out of a physical increase in the stock of new goods and services newly produced. Profit income from asset transactions was largely disregarded. However, in his 2014 work, Kliman et al. compared the profits of US financial and non-financial corporations using national accounts data, in order to argue that it is not [financialization](#) which has depressed productive investment, but that instead the real cause is the falling rate of industrial profit of non-financial corporations.^[282] A rival argument is presented by Mejorado & Roman.^[283]

Unproductive labor and the profit rate

Some claim that for Marx, commercial trade and asset speculation were *unproductive* sectors, in which no new value can be created.^[284] Therefore, they argue, all income of these sectors represents a *deduction* from the new value created in the productive sectors of the economy. Booms in unproductive sectors may temporarily act as a countervailing factor to the TRPF, but not in the long run. Professor Fred Moseley argues that in the United States the grand-average rate of profit on production capital is lower than it was in the first decades after World War II, in part because of a rising share of [unproductive labor](#) in the total workforce, raising aggregate costs.^[285] This is a reason of its own for a falling average rate of profit.^[286] It suggested that, if the unproductive labor was "weeded out", then the profit rate would rise.

How the distinction between productive and unproductive labor is drawn obviously has a big mathematical effect on the estimated total profit rate on production, if unproductive labor costs are excluded from the total variable capital outlay, and included in the part of total net output which represents total surplus value produced. If the proportion of unproductive labor increases, paradoxically the total surplus value will then also increase, with the effect of raising the rate of profit. Prof. Moseley resolves this paradoxical effect by distinguishing between primary and secondary income distributions, and between gross and net surplus value. In his account, first the total net value-added is produced by the productive workers, and then the gross wages of the unproductive workers are *deducted* from the gross surplus value; in that interpretation, it follows that the larger the wage-bill of unproductive workers is, the lower the netted surplus value will be. [Chris Harman](#) noted large quantitative differences in the estimates of unproductive labor by different orthodox Marxists.^[287] Moseley's calculations and his definition of unproductive labor have been criticized by other Marxists.^[288] The main objections discussed are conceptual and empirical.

- The main conceptual objection is, that the distinctions between productive and unproductive labor offered by various Marxists are essentially arbitrary, and without a genuine, scientifically sound foundation. In a complex division of labor, specialist productive work relies on a network of indispensable managerial, facilitary and technical support services, without which it could not take place at all.^[289] Marx himself never said that managerial functions were wholly "unproductive", but rather that they combined productive and unproductive tasks.^[290] He pointed out that there were continually disputes about whether labour was productive or not, depending on who could make money from it – and that in turn depended on how the accounting was done as well as on property rights.^[291] Whether workers physically and directly produce something tangible or not, they are all necessary, or at least most of them are (as Marx acknowledges with his concept of the "collective worker" or, in German, *Gesamtarbeiter*).^[292] It is therefore impossible to attribute the creation of new value only to workers who directly produce a tangible product. Marxists often assume in their social accounts that the total payment of unproductive labor is made from a redistribution of part of the current surplus value produced by productive labor, but there is no proof of that assumption whatsoever, and indeed some Marxists have argued that the "overhead expense" of unproductive labor represents an outlay of circulating constant capital.^[293] [David Ramsay Steele](#) has defended the productive economic role of financial markets.^[294]
- The main empirical objection is, that there exists no accurate way to separate out productive and unproductive labor in official statistics (and the value each represents), even if the conceptual distinction could be validly defined. The main reasons are that "productive labor" is not equivalent to "productive worker", that the same worker may perform tasks which are classified as partly productive and partly unproductive, and that how the product of various services (or the role of services in production) should be defined remains controversial.^[295] When statisticians allocate producer's occupations and outputs to a classification scheme, their defining criterion is the "main activity" of producers, disregarding their ancillary activities. Thus, already the base data represent an abstraction from reality.

A businessman looks at the deployment of labor in a different way, but faces a similar analytical problem. All labor produces something,^[296] but it does not necessarily help to create profit for one reason or another. What interests a businessman in a financial sense, is the cost of labor which directly creates the product or service

that generates profit, versus the cost of labor that is effectively only a necessary overhead expense for his own business. The general aim is, to maximize productive labor in this sense, and minimize unproductive costs. That is the efficiency principle that guides the development of the division of labor organizationally. Ideally speaking, everything the employee does would directly contribute to profit for the enterprise (but in reality it usually doesn't). If employers paid [piece wages](#) then, in theory, they would incur costs, "only if" their employees created new value for them. Marx believed that piece wages – whether paid on an individual or team basis^[297] – were, in the long term, the most favorable form of remuneration for capitalist labor-exploitation, although he recognized that often workers earning piece-wages could initially earn more than workers on time-wages.^[298]

The trouble though is, that this productive/unproductive distinction is not easily made in practice, given changes in the market, in social-organizational efficiency, and in production techniques, and it does not necessarily have anything to do with whether a worker produces something tangible or not. What looks like an efficiency gain from "weeding out" seemingly unproductive activity may in fact not be an efficiency gain in total, or it may be very difficult to prove that it is. If fewer workers are made to do more work, intensifying labor, then accidents, illness or errors may increase. In the real world, technical efficiency and financial efficiency are not necessarily the same thing at all. Hence there is continual debate in management theory about these issues, with few "general" answers being available, since much depends on the specific organizational technique of enterprises. The only "general" answer there is, is to recast the accounting for every detailed activity that workers perform as a statistically observable input-output relationship which results in a "product", even if the "product" is no real product at all, but some kind of service or performance result. By *describing* a labor-service or a task performance as a product, it seems identifiably productive, although substantively it may not create any new product. In Marxist theory, this is called the "commodification of services": each specific service is accounted for as a specific alienable product with a certain price tag, and managed accordingly. Eventually, many services which have to be performed by trained staff are replaced by mass-produced things, because that is more profitable and cheaper to buy. For example, a teacher is replaced with an instruction video.^[299]

What orthodox Marxists traditionally tried to do, is to create concepts for a very precise standard classification schema of occupations and output-defined industrial activities, which splits the working class into [productive and unproductive employees](#).^[300] This schematic approach to the issue was strongly influenced by the official orthodox Marxist–Leninist [Material Product System](#) (MPS) in the [Soviet Union](#), [Eastern Europe](#), [China](#), [Cuba](#) and [Vietnam](#). The MPS national accounts divide economic activity into a productive sector where tangible physical goods are produced, an unproductive sector creating services, and households. Another influence was [Piero Sraffa](#)'s revival of the classical distinction between the production of "basic" and "non-basic" goods.^[301]

What Marx himself was concerned with was something else: the evolutionary tendencies of the capitalist [division of labor](#), from the first urban workshops in medieval times, to large joint-stock companies employing thousands of workers in different countries.^[302] Since the division of labor changes when new technologies and forms of organization are introduced,^[303] the definition of what is "productive" labor must change as well. Although Marx assumed that the basic institutional set-up of capitalist production remained the same (with respect to property rights and trading circuits) he never assumed that its specific organisational forms would stay the same. Methods of organisation had evolved, and were repeatedly changed as new inventions and techniques became available.^[304] 21st century managers are not just concerned with the design of work-tasks, like [Frederick Winslow Taylor](#) was, but with the design of the total organizational environment within which workers function.

Profit rate and economic crises

In 2010, a fierce debate occurred about the rate of profit between leading Marxist economists from various political organizations in Western Europe and North America. According to the French Marxist economist Michel Husson, there were basically four bones of contention: (1) how had the average rate of profit in industries evolved since the early 1980s, in the larger developed capitalist countries? (2) what is the theoretical status of the tendential fall in the rate of profit in the Marxist analysis? (3) what is the nature of the capitalist crisis today? (4) what is the political relevance of this discussion?^[305] However, there was very little agreement about concepts, measurement principles, and political perspectives among participants. According to some (like Michel

Husson) the rate of profit had gone up again since 1980, while others (like Andrew Kliman) thought it had stayed down. All kinds of different political conclusions were being drawn from the econometric evidence. The traditional orthodox Marxist narrative is that capitalist crises are crises of profitability: the economic disturbance is caused by the circumstance that capitalists are making insufficient profits, and not because there are insufficient goods for everybody.^[306] That situation is bound to happen, because of the tendency of the rate of profit to fall.^[307] Once workers understand that, they can break with illusions about reforming capitalism, and prepare for revolution. Critics^[308] point out, however, that this kind of interpretation is problematic. There are two main reasons.

- First, in any significant economic slump, *all* economic indicators of output production, market sales, investment and employment are down, not just average profitability. If (for example) sales are down, it is logical that profit income will be down as well, but this does not mean automatically that lower profitability *causes* the downturn in sales. It all depends on how exactly "macro" and "micro" trends are related. [Post-Keynesian](#) economists are apt to point out that, whether people are buying or not, matters a great deal to the overall functioning of the economy, and matters a great deal to overall profitability.^[309] The most common fault in economic analysis is that short-term trends are confused with long-term trends, and this is often what the controversy between Marxists and Keynesians is about.^[310]
- Second, average profitability is itself determined by a huge variety of influences on costs, sales and income which are all linked together in various ways.^[311] Therefore, if the crisis is blamed on lower profitability, this either states a tautology which must be true by definition ("people are not making as much money as they used to"), or else it is substantially false – since the crisis is just as much caused by a drop in sales, output, investment, incomes and employment – which all react on each other.

An additional reason, noticed for example by [Michael Hudson](#),^[312] is that in the rich countries, the stock of privately owned physical production capital used in industries is nowadays only a minor component of the total capital stock. If, therefore, the profit rate on privately owned physical industrial capital falls a percent or two, this cannot have a very large or immediate negative effect on the whole economy. To claim that it does have such a big effect, makes no mathematical or econometric sense whatever.

Profitability may be observed to fall, along with other variables, but that says nothing about the true interrelationship of the determinants which explain *why* it falls. In fact, the orthodox classical revolutionary Marxist [Paul Mattick](#) even claimed "that the conditions both of the crisis and its solution are so complex that they cannot be empirically determined. When the crisis will break out, its extent, and its duration cannot be predicted; only that there will be a crisis can be expected with certainty."^[313] Causal chains could be traced out in all sorts of directions, using the same econometric evidence. Thus, to ascertain what independent role profitability actually plays in economic development requires a much more precise analysis than Marxists have ever provided. Marxists simply assumed the centrality of profitability in capitalist production, but they failed to prove that falling profitability is *the root cause of all crises*, rather than (say) one of the effects that are visible in crises.

In reply to this kind of criticism, orthodox classical revolutionary Marxist academics such as [Andrew Kliman](#), [Michael Roberts](#) and [Guglielmo Carchedi](#),^[314] admit that the crisis may not be directly *caused* by an insufficient mass of profit to valorize all the capital there is (the traditional Fraina-Grossmann-Mattick argument). After all, this is not really credible in view of the great financial crisis of 2007–2009, which arose out of a financial panic about dodgy securitized products that occurred when average business profitability was high.^[315] Rather, these Marxists argue, the historically low average profitability of industry explains *why depressed conditions persist*, instead of a quick recovery happening after a credit bubble pops. Thus, low industrial profitability is the "underlying factor" explaining general economic stagnation.^[316]

According to this narrative, in recent decades "economic fundamentals" were in a poor state; nothing much was done about that, except that workers were beaten down; instead, the economy was artificially pumped up with cheap credit and cheap imports, prompting a housing and spending boom; when the credit bubble popped, the economy sagged right back into its poor state.^[317] Such arguments may have some plausibility, but if they are examined in fine detail, it is clear that a whole series of different arguments are actually being made about the

way that falling profitability is connected to economic slumps. In reality, therefore, it is still far from resolved what the role of profitability in crises actually is.^[318]

In the aftermath of the 2007–2009 slump, corporate profits surged to new heights while real wages stagnated, but this did not lead to a full recovery of real employment, real output growth and real fixed investment.^[319] As [Mohamed El-Erian](#) of Pimco predicted fairly accurately in 2009, the number of jobless in the US economy has settled at a higher level that looks like persisting in the longer term.^[320] This result is mainly attributable to long-term unemployed people being unable to find paid work again, and dropping out of the labour force. BLS data showed that between 2008 and 2014, the US labor force (those employed for one hour per week or more + officially unemployed workers) stayed basically at the same size, although the proportion of unemployment within the labor force grew; yet according to the [US Census Bureau](#) the total US population increased by a net 13 million people at the same time (about half of whom were immigrants), and, according to the BLS, the number of US adults in the economically active population who are classified as "not in the labor force" increased by a net 12 million.^[321] It took seven years for the US economy to recover from the financial crash, but US senator [Bernie Sanders](#) has claimed that real US unemployment is twice the official figures.^[322] For Europe, [Mario Draghi](#) suggested an average increase in "structural" unemployment from 8.8% in 2008 to 10.3% by 2013.^[323] Just as in the 1970s and 1980s, the grand-average jobless rate has risen to a higher level. This creates a downward pressure on the modal average real wage, though at the top end salary packages still increase.^[324] In September 2014, [Robert Reich](#) stated that although profits were at record levels, the median US household income, adjusted for inflation, was now 8% lower than in 2007.^[325]

Yates and the Monthly Review debate

In 2012, [Monthly Review Press](#) published Michael Heinrich's *An introduction to the three volumes of Karl Marx's Capital*^[326] In this book, which was endorsed by leading Western Marxist professors as the best introduction to Marx's *Capital*, and which received some glowing reviews,^[327] Heinrich – who is the chief editor of the leftist flagship magazine PROKLA in Germany – argued that the rate of profit can both rise and fall. Therefore, "A long-lasting tendency for the rate of profit to fall cannot be substantiated at the general level of argumentation by Marx in *Capital*."^[328]

By the end of 2013, leftwing economist [Michael Yates](#) stated: "What exasperates me more and more is the certainty with which so many people pontificate [about the tendency of the rate of profit to fall]".^[329] He argued the evidence for the tendency was tenuous, and that "Marx analyzed capitalism in its "ideal average," at a high level of abstraction. This "ideal average" can serve as a guide to examining the societies in which we live... but the two are not the same, something the disciples of the "tendency of the rate of profit to fall" school do not seem to grasp."^[330]

The socialist journal [Monthly Review](#) with which Yates is associated hosted a special debate about the falling rate of profit and crisis theory, featuring Michael Heinrich, Shane Mage, [Fred Moseley](#), and Guglielmo Carchedi.^[331] Michael Heinrich argued that there is now considerable evidence that in the original draft manuscripts Marx left behind, he never proposed a crisis theory in terms of the falling rate of profit, or that if he did, he was reconsidering that theory at the end of his life.^[332] The outcome of the debate was inconclusive, since the rival Marxists could not find much agreement among themselves about what is the correct interpretation.

Marx (as he said himself)^[333] only intended to provide an analysis of the capitalist mode of production in its "ideal average".^[334] Yet the categories of modern macroeconomic statistics are also [idealizations](#) and stylized facts, even although people might often believe the macroeconomic categories exist as an objective, mind-independent reality.^[335] Furthermore, although Marx accepted [James Steuart](#)'s concept of "profit upon alienation",^[336] Marx's own analysis largely disregarded profit income which did not arise directly from new production by living labor – the reason being, that Marx was concerned with the capitalist mode of production, i.e. with how capital subordinates and reshapes production to fit with capital accumulation, and all that implies for

workers' lives.

Unequal exchange and the rate of profit

According to orthodox classical revolutionary Marxism, profits can only arise from [surplus labor](#), and therefore, it is argued that the direct source of all capitalist profits is the exploitation of wage labor.^[337] This principle is often called the "Fundamental Marxist Theorem" by mathematical Marxists:^[338] a necessary and sufficient condition for the existence of positive profits is that [surplus value](#) is positive.^[339] It is an interpretation which certainly makes sense from the point of view of *Capital, Volume I* where Marx assumed, for the sake of argument and for the sake of simplicity, that the prices at which the inputs and outputs of capitalist production are traded are equal to their value.^[340] In *Capital, Volume I*, Marx aimed to show, that even if all commodities were fairly traded on the basis of equal exchange, exploitation could nevertheless occur within capitalist production, and that if more value did not come out of production than went into it, it would be impossible to explain economic growth. The reason was simply that workers together could produce much more value than they needed themselves to live.^[341] That was, according to Marx, exactly the reason why the owners of capital hired those workers.

However, the analysis of capitalist competition offered in Marx's *Capital, Volume III* is completely based on the principle that commodities, human labor capacity, currencies and assets (physical or financial) in reality *do not trade at their value*.^[342] Rather, they are constantly being traded at margins above their value and below their value, in markets where sales are constantly fluctuating. It is, as Marx explains in the first chapter of *Capital, Volume III*, precisely the difference between the necessary cost-prices and the possible selling prices of commodities which is critical for profit margins, and which is therefore at the epicenter of competition in product markets. Commodities could be sold below their value, at a good profit, assuming a sufficient turnover – the classical principle of competition.^[343] Moreover, the further development of the analysis in *Capital, Volume III* shows that goods and assets are also being traded for profit external to the sphere of production.

As soon as it is admitted that, in the real world, all economic goods can trade at prices above or below their real production-cost, it can no longer be true, that the only source of all profits is the exploitation of wage labor. The reason is, that profit income can arise simply from selling the same priced good for more than it was purchased for, resulting in a capital gain for the seller, where this capital gain can be completely unrelated (or quite disproportional) to any identifiable labor cost. Effectively, more labor can exchange for less labor, and vice versa, and in the real world, this happens – fortunately or unfortunately – all the time.^[344] That insight is the basis of the theory of [unequal exchange](#).^[345] According to this theory, exploitation is not something that is limited only to "the point of production" of the revolutionary classical orthodox Marxists.^[346] Exploitation could occur in all sorts of ways, including at the level of international trade. In turn, that means that profit rates can be influenced by the terms of market trade, quite independently of production (as long as everybody can make gains, then even if the gains are not equal, it may attract no attention; but when incomes fall, the problem becomes manifest). Profit rates may not fall, because products are made cheaply in one part of the world, and resold somewhere else for a much higher price.^[347] The financial gain involved in the resales is not made explicit by value-added statistics, except indirectly.^[348]

The theory of unequal exchange nevertheless remains very much contested among Marxists, because they are unsure about how it could be reconciled with the pure, correct classical revolutionary Marxist orthodoxy.^[349] Three reasons are:

- If the values and prices of goods can vary independently in all kinds of ways, then the classical revolutionary orthodox Marxist principle that total production prices are equal to total product values cannot, realistically, be true; there exists no causal mechanism by which such price-value fluctuations perfectly compensate each other in aggregate, so that total product values equal total production prices. The principle can then be true only in an abstract theoretical model, but not in reality. Yet, if that classical revolutionary orthodox core principle is not true in reality, then it seems to follow there cannot be any systematic relationship in the real world between the Marxist labor-values and the actual price-levels for products – which was precisely what critics argued during the 20th century about the insolubility of the

transformation problem. If the Marxian product values are really determinants of product-prices, is there a way to express that relationship, other than as an accounting consolidation, or as a simultaneous input-output equation? There is no consensus about that issue among mathematicians and computer scientists, although the main trend is now toward probabilistic analysis and vector algebra.^[350] Many mathematical Marxists have abandoned Marx's analysis of the equalization of the rate of profit and Marx's concept of **production prices**, arguing that an analysis of input-output data can straightforwardly prove a strong, robust positive correlation between product-prices and employee hours worked.^[351] They argue, with Marx, that a uniform profit rate does not exist in reality, but against Marx that, therefore, a tendency for differences in profit rates to be levelled out by competition does not exist either. Since (they argue) the deviation of product-prices from product-values is not very great in reality, the **law of value** is an empirical law with predictive power. At least for output aggregates, this is quite easy to prove, since net value-added (gross labour compensation earned and paid + gross profits earned and paid, net of write-offs) is by definition strongly correlated with the total amount of labour hours worked. This analysis does not, however, refer to foreign trade.

- The theory of unequal exchange talks about exploitation in the sphere of distribution, in addition to the sphere of production.^[352] This is regarded by classical revolutionary orthodox Marxists as a reformist threat^[353] to the core orthodox classical revolutionary Marxist principle that exploitation occurs *only* at the point of production, and that capitalism cannot be made fair through **fair trade** or **redistribution**, only abolished by abolishing wage labor.^[354] Thus, for example, **Paul Cockshott** and **Allin Cottrell** prefer a Ricardian theory of comparative advantage to explain world trade.^[355] One Marxist states that "Radicals assume unequal exchange after Ricardo and want the state to intervene to equalize exchange. Marxism critiques both these theories as limited by the level of analysis."^[356] According to Marxist theory, exploitation is a grievance of the working class, but according to unequal exchange theory, capitalists can be just as aggrieved about exploitation, in all kinds of ways, by other competing capitalists or by the state.
- Even if the existence of unequal exchange is accepted as a reality, it is not yet clear how it mainly occurs, or what its modalities are. There have been many different theories about how unequal exchange actually works.^[357]

In his large 2016 treatise on capitalism, **Prof. Anwar Shaikh** has tried to resolve some of these theoretical issues, using a distinction between "profit on production" and "profit on transfer".^[358] Recently **Andrea Ricci** has attempted to provide a unified theoretical framework that can incorporate all the possible forms of unequal exchange mentioned in the economics literature.^[359]

Pollution and the falling rate of profit

One of the first **ecological Marxists**, **Elmar Altvater**, argues that "[t]he costs of clean air and clean water belong to the capital outlays and therefore increase the amount of **constant capital** fixed in the production process with the effect of an increasing **organic composition of capital**. Hence, the profit rate will fall (of course **ceteris paribus**)."^[360] However, not everyone agrees with that idea.

Firstly, it all depends who has to pay for the cost, and what kind of sanctions there are for polluters. ^[361] If the state pays the cost out of general taxes, the costs to individual private enterprises would be much lower compared to their gains. It may be that some businesses gain from an environmentally friendly policy, while others do not, so that they are in competition with each other. Mathematicians would point out that the costs of clean air and water are only a very small component of total capital costs, but some argue that corporations are profitable precisely because they do not pay for **externalities**.^[362] According to Leontief Prize winner **Duncan K. Foley**, the perception that curbing greenhouse gases is "costly" assumes that capitalism is "efficient" without such controls, but if externality costs exist, it means precisely that capitalism is not at all operating at its "efficiency frontier".^[363]

Secondly, the anti-pollution and rubbish-recycling industries can be profitable; additional income is generated by

low-wage workers cleaning up the environment after it has been fouled up by rich people.^[364] After the largest oil spill in history, the [2010 Deepwater Horizon disaster](#) in the Gulf of Mexico, [J.P. Morgan](#) analysts concluded that the business generated by clean-up work would very likely be larger than the financial losses to tourism or fishing, resulting in a net increase in GDP.^[365]

Thirdly, the new technologies may be cleaner and cheaper, rather than more expensive and more polluting. For example, in 2014, the municipal authorities in the Dutch townships of [Beverwijk](#), [Heemskerk](#), [Uitgeest](#) and [Velsen](#) offered residents a subsidy of up to €1,050 (US\$1,300) if they traded in their old petrol-driven scooter for an electric scooter.^[366]

So far, there is no scholarly consensus yet about what the overall long-term effect will be of environmental pollution on the average rate of profit for industries.^[367] In some cases, if a resource is depleted (and therefore much more difficult and costly to obtain), the profit yield on producing the resource might fall, since people will only buy it up to a certain price point. In other cases, if an essential resource becomes scarce, its owners can drive up the price, and thus increase their profit rate, because demand remains strong.

Thomas Piketty and the rate of profit

Although in the 20th century the orthodox classical revolutionary Marxists were unsuccessful in fighting reformism in the working class with a falling rate of profit theory, in 2014 the French econometrist [Thomas Piketty](#) made the bestseller lists^[368] with his new book [Capital in the Twenty-First Century](#). Thousands of reviews of the book were published in many languages. Piketty explores afresh the relationship between the rate of profit and the rate of economic growth, in the tradition of [Simon Kuznets](#). Kuznets was not a "neo-classical" economist, because he had to reconcile economic theory comprehensively with the real facts about the economy;^[369] he was skeptical of neo-Ricardian theory, and took his inspiration from [Joseph A. Schumpeter](#), [A. C. Pigou](#), and [Vilfredo Pareto](#).^[370] Piketty stated: "I do not believe in the basic neoclassical model".^[371] He argues that if the rate of return on total capital invested is higher than the rate of GDP growth in the economy, the share of income going to capital will rise. He provides a quantitative explanation for why inequality is increasing. Piketty believes that the normal grand-average profit rate on all capital assets is about 5%.

Piketty does explicitly discuss Marx's TRPF in a sympathetic way, but he does not find the theory plausible, except that "Where there is no structural growth, and the productivity and population growth rate g is zero, we run up against a logical contradiction very close to what Marx described".^[372] Unfortunately, Piketty argues, Marx seems to have been unaware of the empirical national accounting research that was developing around him, yielding data that could have been used to test his accumulation model, and refine its concepts.^[373] But Piketty admits at the same time that the statistical data available in Marx's time were "wholly inadequate" to understand variability in the capital/income ratio.^[374] In a French interview together with [David Graeber](#), Piketty commented:

"Karl Marx thought that the falling rate of profit would inevitably bring about the fall of the capitalist system. In a sense, I am more pessimistic than Marx, because even given a stable rate of return on capital, say around 5 percent on average, and steady growth, wealth would continue to concentrate, and the rate of accumulation of inherited wealth would go on increasing. But, in itself, this does not mean an economic collapse will occur. My thesis is thus different from Marx's, and also from [David Graeber's](#). An explosion of debt, especially American debt, is certainly happening, as we have all observed, but at the same time there is a vast increase in capital—an increase far greater than that of total debt. The creation of net wealth is thus positive, because capital growth surpasses even the increase in debt. I am not saying that this is necessarily a good thing. I am saying that there is no purely economic justification for claiming that this phenomenon entails the collapse of the system."^[375]

In a May 2014 review of Piketty's book, the Marxist geographer [David Harvey](#) argued that capitalists nowadays drive up the industrial rate of profit by restricting the supply of capital to new (productive) investment.^[376] For example, Chinese steel producers agreed to reduce steel production in response to overcapacity that emerged in 2015, and steel prices and profits are expected to rise significantly by 2018.^[377] The Argentinian scholar Esteban Ezequiel Maito, studying longterm trends in profitability, has argued that "[w]hen a proper definition of the matter in Marxian terms is done, Piketty's data itself confirms the law of the tendency of the rate of profit to fall".^[378] Economists like Odran Bonnet, Boe Thio, and Matthew Rognlie have argued that Piketty's results are largely attributable to his broad definition of capital, specifically to the growth in the value and profitability of the housing stock. Once the housing stock is excluded from capital data, Piketty's results no longer hold.^[379] Michael Hudson notes that if industrial profits are not statistically segregated from real estate profits, the overall rate of return on capital is "considerably understated".^[380] Anwar Shaikh argues that Piketty's measure of capital is "an inconsistent measure of real and financial assets", and that Piketty's "hybrid definition of the rate of profits is invalid".^[381]

The MEGA2 and the rate of profit

In the 20th century, Marxists were handicapped in reading Marx's texts on the rate of profit.^[382] There were five reasons:

- Many of his texts on economics had not been published, or they were originally never intended for publication (they were drafts, notes or letters - yet they were later often quoted by academics "as if" they had exactly the same definite status as writings which Marx published himself).^[383]
- If they were published posthumously, they were initially only available in German, or French or Russian language (e.g. the [Grundrisse](#)).
- The published texts were often hard to get, censored or banned^[384] (and, in Nazi Germany, [burned](#)).^[385]
- If the texts were translated, the translations were often far from exact, restructured by editors, or excerpted (a good example is [Theories of Surplus Value](#) which originally existed only as an unorganized collection of drafts, subsequently edited into books).
- Most editions of Marx's works were heavily influenced by the dominant interpretations of correct [Marxist-Leninist](#) ideology in the Soviet Union, East Germany and China - which recast Marx's and Engels's thought as a complete, systematic, and fully consistent philosophical categorization of human existence as a whole, added to by [Lenin](#), [Stalin](#) and [Mao tse Tung](#).^[386]

[Ronald L. Meek](#) concluded that in dealing with Marx, academics often abandoned scholarly standards of fact-finding, evidential support and proof,^[387] and [Hal Draper](#) referred to the disease of "Marxolalia" ("the propensity to garble Marx").^[388] The British radical Cyril Smith even claimed in 2005 that "It would not be overstating the situation to say that, right down to the present day, the "Marxists" have been among the most direct and bitter opponents of the ideas of Karl Marx."^[389] The total effect was, that for more than a century, people were miseducated about what Marx really said and stood for; his ideas were constantly being filtered through theoretical frameworks and political intentions that were far removed from his own.

All these issues have begun to be solved only from the 1970s, with the publication of the many new volumes of the [Marx-Engels-Gesamtausgabe](#) (the so-called "MEGA2").^[390] This gigantic, annotated historical-critical edition will make available, in a planned 114 volumes (of which 62 have been published),^[391] all existing versions of practically every scrap Marx wrote on economics, in the original language in which they were written. The official German [MEGAdigital](#) website makes division 2 of MEGA2 available online.^[392] However, [Gareth Stedman Jones](#) claims that all the MEGA2 volumes up to the 1990s are still tainted by [Marxism-Leninism](#).^[393] In addition, on [11 August](#) 2015, all the original manuscripts by Karl Marx and Friedrich Engels archived at the [International Institute of Social History](#) were at once made available digitally, online and free of charge.^[394] It has unleashed new scholarly debates about the true theoretical status of Marx's work on the falling rate of profit.^[395] Some (like

Dr. Michael Heinrich) argue that the original manuscripts show, that Marx himself was really far less certain and complete in his arguments than Engels later presented him to be.^[396] Others (like Prof. Fred Moseley) argue that the original manuscripts in fact strengthen Marx's argument. Recently, Ben Fowkes has translated Marx's original manuscripts for *Capital, Volume III* into English, and Fred Moseley has provided an introduction for this new authentic text.^[397] Lucia Pradella refers to "a now influential trend in MEGA² studies in pursuit of a 'new Marx'." ^[398]

Profitability in mainstream economics

In neoclassical economics, economic growth is described with growth models (e.g., the [Solow–Swan model](#)) in terms of [equilibrium](#) ("steady state"). Input per worker and output per worker grow at the same rate. Therefore, [capital intensity](#) remains constant over time. At the same time, in equilibrium, the rate of growth of employment is constant over time. Translated into terms of [labor theory of value](#), this means that the [value composition of capital](#) does not rise, and the constant rate of growth of employment also indicates, in terms of the labor theory of value, that there is no reason for the rate of profit to decline.^[399]

In this framework, a tendency of the rate of profit to decline would mean that input per worker is increased by business managers at a larger rate than output per worker, because:

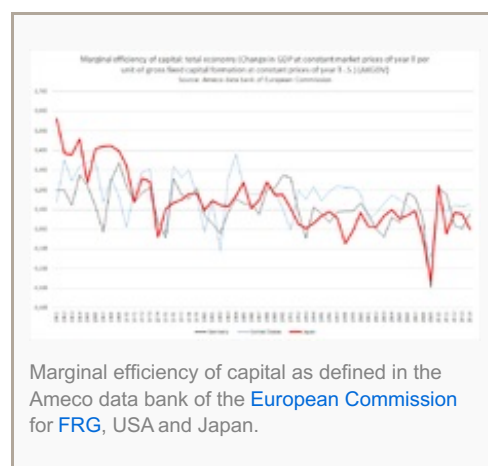
1. overcapacity is encouraged to fend off competition.
2. it results in a larger percentage increase of output per worker.

Thus an alternating movement occurs, where capitalists increase input per worker at a larger percentage than output per worker has risen, which, in the next period, leads to a larger percentage increase of output per worker than that of the previous input per worker. The rate of growth of employment declines in such a scenario.

Within the framework of the neoclassical theory of the factors of production, there does also exist a [law of diminishing returns](#). However, this law does not directly concern profit yields, but rather the variability of output yields in response to variations in the use of the factors of production (capital, labor and land). The "returns" are not profits, but output values. This law is linked to profitability only indirectly, insofar as profit in neoclassical theory is defined as the cost (or the price) of using capital, where capital (including land) is one of the factors of production.

Within [Keynesian theory](#) the [marginal efficiency of capital](#), Keynes's version of the rate of profit, is expected to fall, possibly leading to an "euthanasia of the rentier".^[400]

There have been a number of non-Marxist empirical studies of the long-term trends in business profitability.^[401] Particularly in the late 1970s and early 1980s, there were concerns among non-Marxist economists that the profit rate could be really falling.^[402] From time to time, the research units of banks and government departments produce studies of profitability in various sectors of industry.^[403] The [National Statistics Office](#) of Britain now releases company profitability statistics every quarter, showing increasing profits.^[404] The American-Jewish magazine [Tablet](#) claims that "[Marx's] essential idea, influenced by Ricardo, was that capitalism would become less and less profitable and that its downward spiral toward the abyss of deflation—lower prices, lower profits—would be followed by worldwide revolution. Instead, capitalism has become vastly more profitable."^[405] The [McKinsey Global Institute](#) claims that the thirty years from 1985 to 2014 were the golden years for profits from stocks and bonds, but forecasts that average profitability will be lower in future.^[406]



Rate of profit and the Internet

There is some recent research which tries to assess the impact of the Internet on profitability.^[407] It remains unclear what the total effect of computerization is on the relationship between investments and profits. Some argue that, in reality, computerization by itself does not alter the cost structure of products very much. Others argue, that computerization both enables a much faster turnover of capital, with great productivity gains and fewer employees, and permits entrepreneurs to set up business with computers at a much lower start-up cost than before. Perhaps the main effect of the internet relevant to business is that it has gigantically enlarged the possibilities for market access on a global scale: businesses set up for internet sales can reach vastly more customers in much less time.^[408] The proof of that is, that purchases via the internet have constantly increased,^[409] often at the expense of ordinary street shops.^[410] One of the analytical problems is that the relative importance of computers, and their potential financial impact, differs considerably between different kinds of business.

See also

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 84. **Jump up** ^ Marx Engels Collected Works, Vol. 32, p. 352; or Karl Marx, *Theories of Surplus Value*, Vol. 3 (Moscow: Progress, 1971), p. 167.
 85. **Jump up** ^ "It is not exactly clear, from Marx's text, what c, the constant capital, refers to. There are three possibilities; (1) the constant capital used up (preserved) in the course of a year; (2) the constant capital employed throughout a year (which would include fixed capital not used up); or (3) the capital advanced for the purchase of constant capital (in which case the turnover times of the various elements of constant capital become crucial to the calculation)." – David Harvey, *The limits to Capital*. London: Verso, 2006, p. 181.
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