

Turnover Time and Marx's Decomposition of Profit Adjustment in the Process of Equalization*

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Abstract

The welcomed introduction of Fred Moseley to a 27-page excerpt from Marx's *Economic Manuscript of 1867-1868* draws attention to the influence of turnover times on the formation of prices of production. I discuss the profit-adjustment decomposition outlined by Marx in these pages where he tries to distinguish the influences of turnover time and capital composition on the formation of the prices of production. I provide an alternative decomposition based on Marx's analysis in the second volume of *Capital*.

I argue that these pages do not support Moseley's claim that prices of production are intended only to describe a long-run *equilibrium* condition; as an alternative I suggest considering the profit adjustment as a result that can be determined at any time, in relation to the dynamic formation of the general rate of profit throughout the equalization process.

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Capital, as self-valorizing value, does not just comprise class relations, a definite social character that depends on the existence of labour as wage-labour. It is a movement, a circulatory process through different stages, which itself in turn includes three different forms of the circulatory process. Hence it can only be grasped as a movement, and not as a static thing. (Marx, [1893] 1978:185).

1. Introduction

For over a century, the circulation time of capital and the related phenomenon of turnover time have slipped into oblivion with harmful consequences for the correct understanding both of Marx's theory of prices of production and, more generally, of the relationships between industrial capital and merchant's capital (commodity capital and money-dealing capital), also limiting the understanding of the dynamics of the recent crisis. It is not surprising, therefore, that the English translation of a very interesting excerpt of 27 pages

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from Marx's *Economic Manuscript of 1867-1868* (2019)¹ has gone almost unnoticed, even though it has been presented by a very useful introduction by Fred Moseley (2019). This excerpt shows Marx's interest in the study of the influence exerted by the divergences between turnover times and between compositions of capital on the adjustment of profit rates, which is characteristic of the equalization process and of the formation of prices of production. The importance of developing the analysis of turnover was still in Marx's thoughts in the 1870s, an analysis which he had not been able to take into account in the first and second parts of the manuscript for the third volume of *Capital* (Marx, [1894] 1981; henceforth KV3), where he discusses 'The Transformation of Surplus-Value into Profit' and 'The Transformation of Profit into Average Profit'.

As is well known, the long debate which took place around the alleged inconsistency of Marx's theory of value originated from one of his criticisms of Ricardo's theory of value, because this did not take into account the differences in the average rates of profit of the capitals of the different industrial sectors due to their different compositions. In fact, this diversity resulted in differences in profits for the same amount of capital advanced. Marx had argued for the need to describe how the different rates of profit could tend to equalize towards a general (average) rate of profit with the formation of production prices, under the pressure of competition. This equalization, in fact, would have made it possible to reduce the difference between the profits obtained from capital belonging to the various industrial sectors and the profit obtained from a capital of average composition, given the same amount of capital advanced. Here I will not address this debate (cf. De Marco 2023b) and will concentrate on how these 27 pages allow us to take an important step towards understanding Marx's theory of prices of production. As I will clarify further on, in these pages Marx does not directly take into consideration the process of equalizing the rates of profit, but tries to carry out an important analytical passage by starting from the difference between the average rates of profit of the individual industries and the general (average) rate of profit used to determine prices of production. The particularly interesting aspect is that Marx considers not only the difference between the compositions of the different capitals, but also the difference between the different turnover times and the different rates of surplus value of these capitals, in order to determine the adjustments which should possibly occur in the course of the process of equalizing profit rates.

In what follows, I discuss a limitation present in Marx's attempt to analyse the decomposition of the difference between the profit of a given industry and that obtained from a capital of average composition, with the same amount of capital advanced, and I suggest an alternative decomposition which explicitly identifies the key role played by the turnover time of variable capital in the formation of prices of production. In section 2, after a discussion on the meaning and importance of turnover time, I recall the difference between the *real* rate and the *annual* rate of surplus-value which is a key consequence of considering turnover times. In section 3 I shortly summarize the main content of the 27-page excerpt. I then point out in section 4 (and in **Appendix I**) some limitations of the formula sketched out by Marx for the profit-adjustment decomposition and provide in section 5 an alternative formulation, based on Marx's analysis developed in the second volume of *Capital* (Marx, [1893] 1978; henceforth KV2). In section 6 I argue that the excerpt does not provide evidence to support Moseley's (2019) long-run *equilibrium* interpretation in which the equalization of profit rates is achieved through the simple fluctuation of market prices. In section 7 I suggest considering the profit adjustment as a result that can be determined at any time, in relation to the dynamic formation of the general rate of profit throughout the process of equalization during the business cycle. A short final section 8 summarizes my main conclusions. Two appendices present the definitions and equations that support the arguments developed in the main body of the article and a short comment on Moseley's macro-monetary interpretation.

¹ This manuscript was first published in German in 2012. The excerpt corresponds to pages 254-280 of volume II/4.3 of MEGA, Marx (2012).

2. A reminder on turnover time

Most scholars continue to present Marx's theory of prices of production not only as inconsistent but also as a failed attempt to formulate a general equilibrium description of the social reproduction of capital. Indeed, these scholars consider the alternative interpretations as something unsubstantiated or perhaps only interesting for the history of economic thought, not even worthy to be discussed.² The legitimacy of alternative interpretations is therefore excluded even before discussing the merits of the arguments, and prejudicial criticisms are levelled against scholars who do not adhere to the general equilibrium paradigm, despite the fact that for more than thirty years some scholars have demonstrated the consistency of Marx's theory of value. The controversy on the equilibrium interpretation of Marx's theory of value has a long tradition; here I will not address this controversy in its general aspects.³

Apart from very few studies, the treatment of turnover times is almost absent from the literature on Marxian economic theory.⁴ Thanks to Fred Moseley's editing work and translator Herbert Panzler, Marx's first attempt to explain the profit adjustment related to the formation of prices of production is now available in English (Marx, [1867-1868] 2019). These pages show Marx's efforts to elaborate his analysis of turnover, subsequently developed in the manuscripts for the second volume of *Capital*. Differently from the usual habit in economics, Marx deepens his understanding of the role played by turnover times on the formation of the general rate of profit and consequently on the prices of production. Consistent with his methodological approach, he does not present the analysis of turnover in the first volume of *Capital* because he was still considering the analysis of capital in the immediate production process, whereas the analysis of the value circulation process (on which turnover is based) is put aside and reserved for the second volume.

2.1 Why is turnover so important?

Marx was well aware of the importance of developing the analysis of the phenomenon of turnover. In Manuscript II for KV2, he remarks that since the early 1820s the lack of adequate consideration of turnover had led "to the complete destruction of the Ricardian school" (KV2:373). He considers the differences in turnover times and the differences in

² In truth, as recalled by Andrew Kliman (2007:5), some authors even suggested not to publish papers that did not openly acknowledge the inconsistency of Marx's theory of value: "[these papers] should not be published in journals devoted to the [history of economics]" (Brewer 1995:141)". In some cases, the existence of alternative interpretations is completely obliterated, as Michael Heinrich (2007:195) ironically wrote referring to the "strongly slanted 'introduction'" to *MEGA* volume 15, "written by Bertram Schefold, a neo-Ricardian economist, presenting a devastating critique of Marx as if it were an undisputed judgement of contemporary economic science [my emphasis]." In his 2016 book, Moseley took a much more open approach to the plurality of interpretations of Marx's theory of value.

³ For a reconstruction of the debate on the formation of prices of production see Smith (2019), Moseley (2016), Kliman (2007), and Howard and King (1992, 1989, 1987).

⁴ Besides some early works at the end of the nineteenth century (Hourwich (1894), Lexis (1895) and Schmidt (1889)), only a few authors in the last century (Rosdolsky ([1968] 1977), Bertrand and Fauqueur (1978), Foley (1982; 1986), Senchak (1983), Webber and Rigby (1986), Fichtenbaum (1988), Kotz (1991), Haass (1992), Tombazos ([1994] 2013), Alemi and Foley (1997), Murray (1998)) emphasize the role of turnover. Among the most recent studies see Saros (2008 and 2014), Dos Santos (2011), Basu (2014), Veronese Passarella and Baron (2015), Jones (2017), Bryer (2017), Jones (2021) and Zarembka (2021). Lately, an interesting article by Jefferies (2022) applies turnover analysis in a study of the US rate of profit from 1964 to 2017. A complete reference to literature is also found in De Marco (2023b).

organic compositions of capital *at the same level of abstraction* and explicitly states that they both influence the process of formation of the rate of profit (KV2:294). He stresses again this point in his *Economic Manuscript of 1864-1865* (Marx, [1864-1865] 2015, henceforth MMV3). From the very first page of this manuscript, Marx warns that "the production process, considered as a whole, is a unity of the processes of production and circulation" (MMV3:49) and this unity cannot be accepted with a mere recognition, without analysing the mutual impact of these processes:

It cannot be the purpose of the present book to make general reflections on this 'unity'. What is necessary is rather to discover and present the concrete forms [*Formen*] which grow out of the process of capital, considered as a whole.

If the circulation process contributes to mystify the origin of surplus-value which has been transformed into profit it does not follow that it plays no role in the general process of reproduction of capital and above all in the tendency to the equalization of the industries' average rates of profit; on the contrary, it means that if the circulation process is not fully understood, the transformation cannot be grasped (MMV3:92):

The way the immediate production process is entwined with the circulation process – and the transformation of surplus-value into profit proceeds from the concrete unity of both processes – also contributes in many respects ... to mystifying the surplus-value which has been transformed into profit.

Indeed, it seems that this mystifying role is sometimes used as an implicit justification for considering only the production process and, in addition, an equal period of production (forgetting that, actually, there is no surplus-value without production *and* without circulation). In this way, the richness of Marx's analysis is lost and the way through which "the transformation of surplus-value into profit proceeds from the concrete unity of both processes" disappears. The most severe outcome due to the removal of turnover analysis is the disappearance of the concrete, temporal – not merely logical – dimension of the reproduction process. Naturally, the scholars who do not recognize the importance of turnover time cannot appreciate an analysis that describes its influence on the formation of prices of production.

Unfortunately, Marx did not follow through on his intention to examine the influence of turnover times on the rate of profit in his manuscript for KV3, "since Book Two, which is devoted to discussing this, has not yet been written" (MMV3:261). Engels warned the readers and the scholars of KV3 on the lack of the analysis of turnover in this volume; in fact, he had to write the full Chapter 4 by himself ("The Effect of the Turnover on the Rate of Profit"), based on what Marx had elaborated in the manuscripts for KV2. We also know that these latter manuscripts were mostly drafted after the writing of the second chapter (Part Two of Engels's edition of KV3) of MMV3 (where Marx discusses the transformation of surplus-value into average profit), this explains why Marx did not use his analysis of turnover in MMV3.

2.2 Accounting definitions of turnover time

In the discussions on the formation of prices of production, the common practice is to assume the same turnover time for all individual capitals. In fact, somehow most scholars see no reason why the length of capital circuit of each industry cannot be assumed to be equal to the same standardized (conventional) period. Indeed, the only obstacle is that this standardized period does not exist in reality and does not correspond to the actual average period of reproduction of the money-capital advanced in the various industries. In fact, it seems that capitalists find it extremely useful in business management to break down the ROI formula (the so-called DuPont decomposition of Return on Investment) to

determine the number of turnovers of capital advanced.⁵ On the other hand, Marx's analysis of turnover cannot be belittled as if it were only the result of a conventional breakdown, such as that used in the ROI. Naturally, if we are not interested in analysing how the development of capital in the sphere of circulation and in the sphere of production affects the length of the various phases of which the circuit of industrial capital is composed, we can dismiss the study of turnover and assume that the same standard period is used in all industries. One of the main problems met by political economists of Marx time was represented by their inability to make this distinction and above all to grasp the categories of fixed capital and circulating capital as two different forms of productive capital. The theoretical implications of the ten chapters of KV2 (from 7 to 16) dedicated by Marx to the phenomenon of turnover concern, for example, the in-depth criticisms of the definitions of the categories of fixed and circulating capital attempted by Smith and Ricardo (see chapters 10 and 11 of KV2), as well as the distinction between the different functional forms of industrial capital, represented by productive capital and capital of circulation [*Cirkulationskapital*]⁶ (commodity capital and money-dealing capital).

Unfortunately, even today most Marxist scholars and more generally economists have continued to stick with the mainstream accountancy practice whereby the different forms of productive capital are defined as fixed or circulating if they participate in the production phase for more than or less than one year, a choice that blurs their fundamental differences. For example, according to Napoleoni, the distinction between *fixed* capital and *circulating* capital is not "important" exactly because "it comes about not on the grounds of economic principles, but on the simple grounds of accountancy" (Napoleoni, 1972:133-134). Similar approach in Pasinetti (1977 [1975]:43-4):

the means of production are of two kinds: those constituting the so-called "circulating capital," which are completely used up in the production process within the year and must therefore be replaced in full, and those constituting the so-called "fixed capital," which are used up only partially during the year, and for which only the used-up part need be replaced.

These are still the commonly accepted definitions. Moreover, in this way the categories of commodity capital and money capital are blurred together with that of circulating capital (for Marx only productive capital can be fixed or circulating). The phenomenon of turnover time cannot be addressed as if it were just a matter of choosing the appropriate traditional accounting method, assuming a conventional length (usually a calendar year) as the reference threshold period for *all* individual capitals. Following this attitude to choose a conventional period, even the analysis of the reproduction of circulating capital is assumed to take place during a uniform turnover period for all capitals.

Of course, in studies based on the equilibrium approach there is almost no trace of the theoretical issues raised by Marx against the classical economists of his time on their analysis of capital in its different forms of circulation. The difficulties of those economists stemmed mainly from their inability to distinguish "the social, economic character that things are stamped with in the process of social production" because they based their analysis on the "natural character arising from the material nature of these

⁵ ROI can be considered a very rough approximation of the Marxian gross rate of profit determined on the capital advanced by industrial capital. The common commercial practice, still used up today, to roughly (and wrongly) determine the capital turnover, is recalled in a passage inserted by Engels in the third volume of *Capital* (KV3: 335).

⁶ In the Penguin English edition of KV2 the expression 'capital of circulation' is used six times to translate the term '*Cirkulationskapital*'. Some scholars, like Passarella Veronese and Baron (2015: 1419), legitimately prefer to use the expression 'circulation capital', whereas others, like Murray (1998: 47), prefer 'capital of circulation'; 'merchant's capital' [*Kaufmannskapital*] is another term used by Marx with the same meaning (KV2: 272).

things" (KV2:303). As recalled by Murray (1998:47), "Quesnay, Smith and Ricardo ... never did succeed in properly drawing the distinction [between fixed and circulating capital]" and another mistake of political economists "is to confuse *circulating capital*, which is a form of productive capital, with *capital of circulation* (commodity capital and money capital) ...". For Marx, circulating capital in Smith "is rather lumped together with the shapes that the capital assumes on its transition from the sphere of production to that of circulation, as commodity capital and money capital" (KV2:278). This passage continues and Marx specifies that these latter two forms "are bearers of both the fixed and the fluid components of the value of productive capital. Both are capital of circulation, in contrast to productive capital, but not circulating (fluid) capital in contrast to fixed". All these errors facilitated the blurring of the distinction Marx cared most about, equating variable capital with constant circulating capital:

Finally, the wholly erroneous explanation that fixed capital makes a profit by remaining in the production process, while circulating capital makes a profit by leaving this and circulating, permits the similarity of form that variable capital and the fluid component of constant capital have in the turnover to conceal the basic difference that they have in the valorization process and the formation of surplus-value, and in this way the whole secret of capitalist production is still further obscured. The inclusive characterization of both forms as circulating capital abolishes this fundamental distinction, and this was carried still further by later economists, who took the contrast between fixed and circulating capital as the basic and sole distinction, instead of distinguishing between variable and constant capital.

It is precisely this distinction that will be decisive for the analysis I develop in the following sections.

2.3 Marx's determination of turnover time

In his analysis of the three general forms taken by the circuit of capital – commodity capital, production capital, and money capital – Marx singles out the latter circuit as the only one which allows us to consider the value in process in its repeated turnover (KV2:263). For Marx, when circuits of capital repeat, *what is in process is the value advanced*. This is also the foundation of his treatment of fixed and circulating capital. By turnover time Marx meant the average length of time taken by the money-capital advanced to complete its circuit, with its three different stages (purchase, production, and sale) (KV2:235-6):

The circuit of capital, when this is taken not as an isolated act but as a periodic process, is called turnover. The duration of this turnover is given by the sum of its production time and its circulation time. This period of time forms the capital's turnover time. It thus measures the interval between one cyclical period of the total capital value and the next; the periodicity in the capital's life process, or, if you like, the time required for the renewal and repetition of the valorization and production process of the same capital value.

The money-capital that has completed its turnover is that part of the money-capital advanced and returned to its original form (clearly, its value form, not its physical form), i.e. that part of the capital advanced which has been used up productively⁷ and it has

⁷ As specified by Marx (2019: 163): "let us call the part that is involved in the periodic process of valorisation the consumed part of capital. Here the expression 'consumed' refers to the use-value wherein the capital value is advanced with respect to wear and tear and the circulating fixed capital – as here the value is not consumed, but transferred from the means of production consumed to the product – and the value of

transferred its value to the commodities which have completed the circuit of money-capital with their sale. The number of turnovers is therefore given by the ratio between the amount of value that has completed its turnover in the considered period (the costs of production of commodities sold) and the money-capital that has been advanced at the beginning of the same period (KV3:335). In the simple example of raw materials bought for \$12.000 during a calendar year (of 360 days), if we suppose the stock value was \$400 at the beginning of the year, the number of turnovers by the end of the year is 30. The average length of turnover is given by the ratio between the unit of time chosen as conventional reference (usually a year) and the number of turnovers (KV2:246-7). In the previous example, on average, each 12 days (360 days / 30) the stock of raw materials has been completely used up and renewed. This unit of time can be used to measure the overall time of circulation of a given capital. Clearly, the difference between fixed capital and circulating capital does not hinge upon the unit of time conventionally chosen, their difference lays on the different ways their value circulates (KV2:246-7). A productive capital can be considered 'fixed capital' if it circulates "gradually, bit by bit" (KV2:238):

in the degree to which it is transferred to the product that circulates as a commodity. A part of its value always remains fixed in it as long as it continues to function, and remains distinct from the commodities that it helps to produce. This peculiarity is what gives this part of the constant capital the form of fixed capital. All other material components of the capital advanced in the production process, on the other hand, form, by contrast to it, circulating or fluid capital.

Therefore, typical examples of fixed capital, machines (when they are used as means of production), are not fixed for their physical characteristic or because they participate to the production stage for a period longer than a conventional unit of time (say one year). They are fixed because "perform the same functions over a shorter or longer period, in a series of repeated labour processes" (KV2:237). Conversely, the value of circulating capital is completely transferred to the product each time it participates to the production stage.⁸ The difference between fixed capital and circulating capital is due to the difference in the circulation of their values. The circulating capital must be replaced after each production period has been completed, while the fixed capital is replaced only after several production periods have occurred and its value has been gradually transferred to the commodities produced.

It was the difficulty encountered in making this distinction that has represented the main stumbling block for Ricardo and Smith in their analysis of circulation. Total circulation time is thus made up of production time *and* circulation time (purchase and sale) properly understood. Naturally, the shortening (or lengthening) of circulation time in the phases of purchase and sale does not create value by itself, however, it does affect turnover times and consequently the *annual* surplus-value that can be created in a period of production by the industrial workforce.

labour-power, as this value by itself is alienated to the labourer and consumed by him, but reproduced in the product".

⁸ Naturally, if a machine has been built to specifically participate only to one process of production it must be considered as a part of circulating capital. From the same definition it also results that a machine resulting from a production process cannot be considered fixed capital, but is simply a commodity that is part of the final product and participates in the turnover of the anticipated monetary capital through the circulation phase (and as commodity capital it bears the value of the fixed capital used up, as well as of the circulating capital consumed in its production). It is only the subsequent use of this machine that will determine whether it will be incorporated as a means of production of a new process or whether it will end its circulation in the sphere of consumption.

2.4 Real rate and annual rate of surplus value

For the analysis of the rate of profit, the decisive part of capital turnover is that of the variable capital advanced (the money wage of the workforce applied in every single circuit). The annual rate of profit for an individual capital is affected by the relationship between the variable capital advanced v and the number n of its turnovers accomplished during the period conventionally taken as reference (usually a year). This number is determined following the general rule as suggested by Engels (KV3:335): the number of turnovers is the number of times in which the *same* variable capital advanced repeats its circuit during a given period (usually a year).⁹ If n is the number of turnovers of the variable capital v advanced at the beginning of the period and V the total variable capital applied or turned over in the period, we have:

$$n = \frac{V}{v} \quad (\text{I})$$

Breaking down the surplus-value S into V and s' , where $s' \equiv S/V$ is the *real* rate of surplus-value (on average) for each turnover, it follows $S = s'V = s'nv$. Based on this breakdown of total surplus-value (KV2:378-83), Marx's formula for the rate of profit reported by Engels is pretty straightforward (KV3:167-9):

$$r = \frac{s'nv}{k + v} \quad (\text{II})$$

where k is the constant capital advanced (both in terms of fixed constant capital and circulating constant capital).

The *annual* rate of surplus-value (S/v) is affected by the *total* variable capital turned over during the year $S/v = s'V/v = s'n$, thus it depends not only on the *real* rate of surplus-value s' but also on the number of turnovers accomplished by the variable capital advanced.

Scholars who do not take into account the phenomenon of turnover of variable capital do not distinguish between the *real* and the *annual* rate of surplus-value. In the standard approach to turnover times, these scholars either ignore this problem or choose a theoretical unit of time and assume that all flow variables complete their turnover during this period. Sometimes this period is chosen long enough for the fixed capital to turn over completely and then the analysis is supposed to be feasible in terms of circulating capital. Clearly, this choice makes it impossible to consider the role played by fixed capital in the social reproduction, see Moseley (2016:231-3). These limits are similar to those attributed by Marx to classical economists, as Murray (1998:46-51) has reminded us.

The difference between V and v is crucial considering how Marx viewed the rate of profit. An important consequence of the dismissal of this difference is that with it the possibility of fully appreciating the influence exerted by the capital operating in the sphere of circulation disappears (Passarella Veronese and Baron, 2015). For Marx, the amount of variable capital advanced corresponds to the amount of variable capital applied in every single turnover (KV2:300, 382). As the other form of circulating capital advanced (the circulating *constant* capital), the variable capital advanced "goes into the commodity completely, and is therefore completely replaced by its sale. ... What is involved in both cases is a transfer of given, previously advanced values to the product, and their replacement when the product is sold" (KV2:296).

Sometimes confusion can arise from ignoring Marx's basic assumption that every sale is considered to be made against money as a means of purchase, to distinguish the

⁹ This is actually true only in the case of simple reproduction; when expanded reproduction is taken into account, the determination of the number of turnovers and the formula of the rate of profit is more complex because the variable capital advanced is not necessarily the same during the period considered (for a discussion on this point see De Marco (2023a)).

pure form of commodity exchange from the complications introduced by the use of credit (KV1:278-9; KV2:295):¹⁰

the worker advances the use-value of his labour-power to the capitalist. He lets the buyer consume it before he receives payment of the price. The labour-power is sold, although it is paid for only at a later period. Everywhere the worker allows credit to the capitalist.

...

It will therefore be useful, if we want to conceive the relation in its pure form, to presuppose for the moment that the possessor of labour-power, on the occasion of each sale, immediately receives the price stipulated in the contract.

The notion of money advanced as capital is developed by Marx in contrast to the notion of money spent as revenue; it is their different purposes and their overall circulation that make the difference. Marx focuses his analysis of capital advanced in the circuit of money capital as a value in the process of becoming enlarged capital (KV1:255; KV2:137). For Marx, the amount of variable capital advanced corresponds to the amount of variable capital applied in every single turnover (KV2:300, 382). Whenever he gives numerical examples of the variable capital advanced at the start of a repeated circuit of money-capital, the figure used for this variable capital advanced coincides with the figure used for the variable capital actually applied in every single turnover. The difference between V and v is then given precisely by the number of turnovers; therefore, dismissing the difference between V and v as irrelevant corresponds to the removal of turnover from the analysis and vice versa, with serious consequences, as I will argue below. Jones (2017) discusses several methods used in the literature to determine the amount of variable capital advanced in empirical research.

Unfortunately, in the debate on the formation of prices of production, most scholars, following a long tradition started by Sweezy ([1942] 1968:67-8), continue to focus only on the organic composition or the rate of surplus-value, leaving aside the category of turnover time as if it were only a further 'complication' or another minor source of unequal rates of profit. A 'complication' that Marx faced to explain the role played by capital in the sphere of circulation and its impact on the conditions of production of industrial capital.

3. Marx's profit-adjustment decomposition

Marx's theory of prices of production holds that the general (average) rate of profit of social capital is generally different from the average rate of profit r_i of any individual industry " i " with a different organic composition of capital and/or a different turnover time as well as a different real rate of surplus value.¹¹ Given this starting point, generally recognized by all Marx scholars, various interpretations have since developed as to how this difference in profit rates can be (eventually) bridged and what Marx's reasoning was. My interpretation is that for Marx this difference is reduced on average either through the changes that occur in the conditions of production *and* circulation throughout the economic cycle or through a series of profit supplements (reductions) that each individual industry should obtain (bear). This adjustment process is partially discussed by Marx in

¹⁰ The meaning of 'advanced' capital in Marx is therefore completely different from that implied by the political economists of his time. In *Capital* Volume I Marx makes clear that what matters is the purpose of the purchase ([1890], 1976, 249): "He [the capitalist] releases the money, but only with the cunning intention of getting it back again. The money therefore is not spent, it is merely advanced".

¹¹ Moseley rightly reminds that in the manuscript "Individual capitals represent the average of the total capital [advanced] in individual industries" (Moseley, 2019: 148, note 8).

the second chapter of MMV3 and earlier in several passages of his *Manuscript of 1861-1863* (Marx, 2010). The whole matter that concerns the formation of prices of production consists in understanding *how* this process operates and unfolds its effects.

The welcomed introduction of Fred Moseley (2019) to a 27-page excerpt from Marx's *Economic Manuscript of 1867-1868* (Marx, 2019) draws attention to the important issue of the influence of turnover times on the formation of the prices of production. In these pages Marx mainly analyses the difference between the rate of profit of a given capital advanced and the rate of profit of an average capital (a capital of average composition), determining to what extent this difference derives from the different composition of the annual production costs, from the different turnover times, or from different rates of surplus value. However, on the whole, he provisionally assumes that the *real* rate of surplus-value is the same for all industries.¹²

It is crucial to emphasize that every time Marx utilizes the expression "organic composition of capital" in these pages, differently from the choice made in *Capital*, he means the "composition of the functioning capital", "the composition related to the cost price [the cost of production]", "a given equal organic composition of the capital (i.e. of the functioning Capital C)" (Marx, [1867-1868] 2019:175). Marx uses all these expressions to refer to the composition of production costs. I discuss the consequences of this decisive difference in **Appendix I**.¹³

As recalled by Moseley, who carefully presents Marx's messy notes, the price of production P_i of the annual product of industry "i" is determined, by definition, by adding the annual cost of production K_i and the profit proportional both to the general rate of profit r and to the capital advanced in that industry C_i :

$$P_i \equiv K_i + rC_i \quad (\text{III})$$

The total value W_i is determined by adding the annual cost of production K_i and the annual surplus-value S_i produced by the annual variable capital applied in that industry:

$$W_i \equiv K_i + S_i \quad (\text{IV})$$

Considering that, by definition, $r_i \equiv S_i/C_i$:

$$W_i = K_i + S_i = K_i + r_i C_i \quad (\text{V})$$

Naturally, in a synchronic determination the *total profit-adjustment*¹⁴ (A_i) is given by the difference between the prices of production P_i and the value W_i of commodities sold:

$$A_i \equiv P_i - W_i \quad (\text{VI})$$

¹² Indeed, Marx does argue that "an increased rate of surplus-value may compensate the lesser turnover" (Marx, [1867-1868] 2019:168). Unequal rates of surplus-value are also considered in the short section B) of the excerpt (Marx, [1867-1868] 2019:173-5), where Marx concludes that "With respect to turnover" unequal rates of surplus-value "would be the same as if *capitals of different composition* would turn over".

¹³ See the numerical example on page 176 (Marx, [1867-1868] 2019). For the definition of the organic composition of capital advanced used in *Capital* see Marx (MMV3:252-3, 753-4; KV1:762).

¹⁴ In the excerpt Marx uses the term 'surplus' in only one circumstance (Marx, 2012: 256) to indicate the difference between the price of production (calculated by applying the general rate of profit) and the value obtained taking into account the surplus value produced in an individual industry; in the English translation this term is rendered with the expression 'profit adjustment'. In reality, subsequently Marx always uses the term [*Zuschlag*] translated as 'supplement', while Moseley in his introduction almost always uses the expression 'profit adjustment'. To facilitate the comparison with Moseley's interpretation I will also use this expression.

$$A_i = (r - r_i)C_i \quad (\text{VII})$$

In the excerpt, Marx's decomposition of (VII) ascribes the differences $(r - r_i)$ between the general rate of profit r and the industry's (value) rate of profit r_i to three factors: unequal turnover times of capital advanced, unequal compositions of annual production costs, and their combined effect (the real rates of surplus-value are assumed equal). Each of these factors generates the need for the corresponding adjustments A_i^t , A_i^c , and A_i^{tc} , necessary to compensate for the deviation of the value rate of profit r_i from the general rate of profit r , so that:

$$A_i \equiv A_i^t + A_i^c + A_i^{tc} \quad (\text{VIII})$$

After a series of cumbersome examples, Marx determines these adjustments as follows:

$$A_i = (C_i - K_i)\pi_i + (r - \pi_i)K_i + (r - \pi_i)(C_i - K_i) \quad (\text{IX})$$

Where $\pi_i = S_i/K_i$ is the ratio between surplus-value and production costs (or profit margin) of the industry "i", called by Marx the "rate of profit related to the cost prices".

When $r_i \neq r$, the compensation or curtailment determined by the deviations or *profit-adjustments* *As should* allow (I will explain the use of this conditional formulation below) the movement toward equalizing the industry "i" average 'price' rate of profit to the general rate of profit (because $W_i + A_i = P_i$). In **Appendix I**, I explain the meaning of the results achieved by Marx in (IX).

4. Limitations of Marx's formulas

Equation (IX) clarifies what Marx was trying to figure out in these pages; he was trying to distinguish the influence of turnover time, and possibly of the real rate of surplus value, from the influence of capital composition on the formation of prices of production. However, the *very simplifying assumptions* used in these pages and their messy form show that they were not ready for publication. Indeed, once these assumptions are relaxed, the profit-adjustment decomposition formulated in the excerpt is no longer adequate. In **Appendix I**, I discuss these assumptions and show that the turnover time of the capital advanced *is not independent* of the annual composition of production costs, as it should be in a breakdown that aims to *distinguish* the influences of its subcomponents. What is most important, the specific and unique role played by the variable capital in the valorisation process completely disappears in the decomposition tentatively outlined by Marx in the excerpt.

The years 1867-1868 were certainly not the first or the last period during which Marx dealt with the phenomenon of turnover time. Part II of KV2, 'The Turnover of Capital', encompasses chapters VII-XVII. For the edition of these chapters Engels used only Manuscript II, written between the end of 1868 and the middle of 1870,¹⁵ except for the first ten pages (156-65) related to chapter VII and the beginning of chapter VIII, based on the end of Manuscript IV (written between June and August 1867). Successively, in the years 1877-1878, other shorter manuscripts were added (see Engels's Preface to

¹⁵ Heinrich (2016:108) recalls that the Manuscript II used by Engels was written in 1868-1870 (in 2007 he suggested the years 1867-1871 (Heinrich, 2007:197)). As well recalled by Veronese Passarella and Baron (2015:1418, n. 5): "the so-called Manuscript I of V2 [Volume II of *Capital*] was written in the first half of 1865, whereas, starting from March 1867, Marx had been writing some fragments of V2 and V3, and some collected excerpts as well. This material is now called Manuscript III, due to the numeration used by Marx for labeling his drafts. Still, in October 1867 Marx wrote the 'fragment used for Manuscript IV'. Thereafter, Marx re-started writing V2, but he stopped at the section labeled 'The concept of turnover'. This document is now known as Manuscript IV. After a break, he re-started working in December 1868. Manuscript II was ready in the second half of 1870".

the edition of KV2 (84-5)). I have briefly recalled these few editorial facts to recall the appropriate context for the drafting of these pages from the 1867-1868 manuscript.

Contrary to the attempts sketched in the *Economic Manuscript of 1867-1868*, Marx develops a much deeper analysis in the manuscript used by Engels for Part II of KV2, 'The Turnover of Capital'. Especially, in chapters 10 and 11 of KV2, Marx reaches important conclusions on the difficulties encountered by Smith and Ricardo who focus their attention on the similarities of form that circulating constant capital and variable capital have in their turnover without distinguishing the specific role played by the turnover of variable capital. For example, as I mentioned above, he emphasizes that Smith overlooks "the basic difference that they have in the *valorisation process* and the formation of surplus-value, and in this way the whole secret of capitalist production is still further obscured" (KV2:278). The same problem arises with Ricardo (KV2:296):

The all-important distinction between variable and constant capital is thereby obliterated and with it the whole secret of surplus-value formation and of capitalist production, namely the circumstances that transform certain values and the things in which they are represented into capital.

A few pages later, Marx adds (KV2:302):

It is clear from the start that the definition of the capital laid out on labour-power as circulating or fluid is a secondary one, which glosses over its specific difference in the production process.

While it is true that each component (fixed and circulating) contributes to the overall turnover of the capital advanced, focusing on this turnover without making any distinction hides the role played by the turnover of variable capital advanced in the valorisation process. In fact, for a given composition of capital advanced and a given real rate of surplus value, *it is only the turnover of variable capital advanced that affects the formation of the rate of profit*. In the second part of KV2, dedicated to the turnover of capital, the last two chapters concern the turnover of variable capital and the circulation of surplus-value. Not surprisingly, then, Marx utilizes an alternative decomposition of the rate of profit that places the valorisation process at the centre of his analysis. Unfortunately, Marx did not use this formulation of the rate of profit to develop a new profit-adjustment decomposition.

5. Profit-adjustment decomposition after *Capital Volume II*

Starting from equation (II) it is possible to overcome the limits of the decomposition of profit adjustment sketched out in the 1867-1868 manuscript. Defining the organic composition of capital¹⁶ $q \equiv k/v$, we have:

$$r \equiv \frac{s' n}{q + 1} \quad (X)$$

In this equation, the organic composition of capital q reflects the *initial conditions* of the process that possibly leads to the achievement of profit, just because by definition it is given by the ratio of two components of the capital advanced. The real rate of surplus-value and the number of turnovers carried out by the variable capital advanced are instead the *results*, which can be determined exclusively at the end of the period

¹⁶ There is a large debate on the correct definition of organic composition, here I prefer to keep its traditional meaning instead of using the value composition because I prefer not to insert a further complication. For the definition of the organic composition of capital used in *Capital* see Marx (Marx, [1861-1863] 2010, Volume 33:305-10; KV1:762-3; MMV3:252-3, 753-4). Moseley (2016:333-361) criticizes the interpretation of organic composition of capital presented by Ben Fine and Alfredo Saad-Filho in their works. See also Chapter 8 in Zarembka (2021), I cannot discuss this matter here. I thank Paul Zarembka for raising this issue.

considered. A given rate of profit is consistent with many different combinations of s' , n and q .

Following a similar reasoning to that sketched out by Marx in the excerpt and assuming an equal real rate of surplus-value s' , to focus the attention on the comparison with (IX), it is possible to use (X) to break down the difference between the general rate of profit r and the individual industry's average (value) rate of profit r_i :

$$r - r_i = \frac{s' n}{q + 1} - \frac{s' n_i}{q_i + 1} = s' \left(\frac{n}{q + 1} - \frac{n_i}{q_i + 1} \right) \quad (\text{XI})$$

The *total profit-adjustment* A_i^* for an individual industry will be:

$$A_i^* = s' \left(\frac{n}{q + 1} - \frac{n_i}{q_i + 1} \right) C_i \quad (\text{XII})$$

Labelling Q the ratio $1/(q + 1)$ and Q_i the ratio $1/(q_i + 1)$,

$$A_i^* = s'(nQ - n_i Q_i) C_i \quad (\text{XIII})$$

This total profit-adjustment can be easily decomposed. We can write n in terms of n_i and Δn_i , so that $n = (n_i + \Delta n_i)$. Doing the same for Q , the formula above can be rewritten as follows:

$$A_i^* = s'[(n_i + \Delta n_i)(Q_i + \Delta Q_i) - n_i Q_i] C_i \quad (\text{XIV})$$

Therefore:

$$A_i^* = s'[Q_i n_i + Q_i \Delta n_i + n_i \Delta Q_i + \Delta Q_i \Delta n_i - n_i Q_i] C_i \quad (\text{XV})$$

$$A_i^* = s'[(n - n_i)Q_i + (Q - Q_i)n_i + (n - n_i)(Q - Q_i)] C_i \quad (\text{XVI})$$

The first term in the square brackets explains the adjustment due to the differences between the overall average turnover time of the variable capital advanced by all industries and the turnover time of the variable capital advanced by industry "i", the second term explains the adjustment due to the differences between their organic compositions and, finally, the third term explains the adjustment due to their combined effect.

Clearly, the definitions of the A^* s now change:

$$A_i^{*t} \equiv s'(n - n_i)Q_i C_i \quad (\text{XVII})$$

$$A_i^{*c} \equiv s'(Q - Q_i)n_i C_i \quad (\text{XVIII})$$

$$A_i^{*tc} \equiv s'(n - n_i)(Q - Q_i)C_i \quad (\text{XIX})$$

The differences between (IX) and (XVI) are somehow expected and arise from the alternative ways of considering the turnover and the composition of capital in the two decompositions. Even though their totals are the same, the three sub-components of the total adjustments are different because in the latter decomposition the definition of the two main components are independent of each other.

The decomposition (XVI) is not affected by the simplifications of breakdown (IX) and highlighted in **Appendix I**; it also maintains the influences of turnover time and composition of capital separate and takes into account the role played by variable capital in the process of valorisation.

The insertion of a further adjustment due to unequal real rates of surplus-value could be easily formulated. Another important adjustment that should be considered is that due to the influence of the accumulation process that inevitably affects the industries' rates of profit and their equalization process.¹⁷

Some results that can be derived from formula (XVI) are straightforward. There are two limit situations. The first one is when an industry's organic composition of capital is different from that of the average capital and this difference is compensated by different turnover times (increased mechanization implies a shorter period of production and possibly a shorter period of circulation), so that the value profit rate r_i is equal to the price profit rate (the equalized profit rate) r and in the previous formula (XVI) we have $A_i^* = 0$, because:

$$nQ = n_i Q_i \quad (\text{XX})$$

¹⁷ I discuss this important issue in an article forthcoming (De Marco, 2023a).

The other limit situation is when the average organic composition of an industry is equal to that of the average capital and yet the value rate of profit is different from the general rate of profit r because the industry's turnover time is different from the turnover time of the average capital, so that $A_i^* \neq 0$ even though $Q = Q_i$. The relevance of these two limit situations could be apparently easily dismissed considering them as unrealistic conditions that are not worth considering (anyway, no more unrealistic than a stable condition of general equilibrium based only on prices adjustments). *These two situations cannot be explained, of course, by the scholars who do not take into account the theoretical analysis of turnover.* In any case, the key issue for these scholars is that if they want to use the turnover time analysis in empirical research, they will have to develop this analysis without a theoretical background; on the other hand, if they will not take into account the turnover time in their researches because they do not include this phenomenon in their theoretical approach, they will miss a powerful tool of analysis. Sometimes Marxists scholars opts for the use of the ratio of sales to capital advanced so as to bring to the fore the so-called profit margin (*Profit/Sales*):

$$\text{Rate of profit} = \frac{\text{Profit}}{\text{Sales}} \frac{\text{Sales}}{\text{Capital advanced}}$$

The main problem with this decomposition is that each single turnover of capital advanced is completed only when its value is replaced in its initial form, therefore, production costs should be used in the formula instead of sales. On the other hand, the ratio

$$\text{Sales/Capital advanced}$$

cannot be used as a proxy for

$$\text{Costs of production/Capital advanced}$$

to compare changes in turnover time throughout the years because this would imply to make the additional assumption of a constant real rate of surplus value. Anyway, even this latter approximation would be insufficient to analyse the different determinants that contribute to the formation of the profit rate.

Precisely because it highlights these determinants the breakdown of the profit adjustment suggested by formula (XVI) opens up more interesting perspectives for empirical research.

Veronese Passarella and Baron (2015) convincingly argued the decisive role played by capital of circulation in the formation of the rates of profit. More recently, Jones (2021) uses the analysis of turnover in his book *The Falling Rate of Profit and the Great Recession of 2007-2009*. Lately, Jefferies (2022) provides estimates of the turnover of US circulating capital and the profit rate of private corporations from 1964 to 2017.

In the next two sections I will discuss two alternative interpretations of Marx's profit-adjustment decomposition.

6. Moseley's interpretation of Marx's profit adjustment

According to Moseley (2019:152), the excerpt (Marx, 2019) "provides additional textual evidence" to support his 'macro-monetary' interpretation of Marx's theory. To back up this claim, the first point of his conclusions emphasizes that even in the excerpt "*the general rate of profit is taken as given*, as determined by the prior theory of the total surplus-value in Volumes 1 and 2 of *Capital*" (Moseley, 2019:153). This is a general and controversial claim put forward by Moseley in his book *Money and Totality* (2016), and in several other places, with which I disagree (for a more general critique of Moseley's interpretation see De Marco (2021), *IJPE* (2017), Laibman (2018a, 2018b)). As long as Moseley suggests his interpretation limiting himself to analysing the so-called transformation problem as opposed to scholars who have discussed this problem in terms of general equilibrium, his willingness to refer to some sort of equilibrium may be understandable though not agreeable. I disagree with his attempt to generalize his long run equilibrium approach to the description of the profit-adjustment decomposition outlined by Marx. I argue that the interpretation of Marx's attempt to develop a profit-

adjustment decomposition should not be limited to the analysis of the merely logical and one-sided condition of the long-run *equilibrium*.

Moseley can legitimately claim that Marx takes the general rate of profit as given, because this is what it is written in the excerpt (although, unlike Moseley, Marx does not add "as determined by the prior theory of the total surplus-value in Volumes 1 and 2 of *Capital*"). On the other hand, there is no theory without the essential interplay of its several components, choosing only one piece of a complex theory can be literally correct but theoretically wrong.

If one considers in isolation the analysis developed by Marx in some sections of Chapter 17 of *Capital* Volume I, 'Changes of Magnitude in the Price of Labour-Power and in Surplus-Value', one might wrongly conclude that Marx *always* assumes as given the intensity of labour, or the productivity of labour, or even the length of the working day. In fact, in each one of these sections, Marx applies only *provisionally* the *ceteris paribus* condition so he can analyse the factors that contribute to changing the price of labour-power one at a time (length of working day, intensity of labour, and productivity of labour), while the other factors are assumed to be given. In KV2 Marx presents the schemes of reproduction without considering the rates of profit and, of course, this does not mean that in the social reproduction, in the relations between the departments, these rates do not matter. A similar approach is followed in the first chapter of MMV3 devoted to the analysis of 'The Transformation of Surplus-Value into Profit'. How should we regard interpretations of Marx's theory of value that would take into account only the intensity of labour without mentioning the productivity of labour, or schemes of reproduction without any reference to the rate of profit?

To determine the profit-adjustment decomposition, the excerpt *must* assume both a given general rate of profit and the rate of profit of a given industry because this is literally what its definition requires, but that does not imply that for Marx this decomposition is not intended to describe the changes that occur in profit adjustments during the equalization process. Does he take into account in this excerpt the process of accumulation? Does he take into account the transfer of capital from less profitable industries to more profitable ones? Should we say that since he does not take into consideration these processes, they are not involved in the adjustment process?

Moseley makes a great effort in his *Money and Totality* to quote numerous passages throughout Marx's work to support his claim that the general rate of profit is determined in KV1 and KV2 and taken as given in KV3.¹⁸ However, if it is true that in the tables of Chapter 9 of KV3, Marx *provisionally* provides a description of the formation of prices of production assuming as given the total surplus value produced (to show its redistribution in the example built in its famous tables), nowhere does he present these prices as an *equilibrium* condition.

Moseley also undervalues Chapter 10 of KV3 (third section of Chapter 2 of MMV3), where Marx addresses the problem of the formation of the prices of production and raises the crucial question, in the following terms (MMV3:285):

The really difficult question here is this: how does this equalisation of profits or this establishment of a general rate of profit take place, since it is evidently a result and cannot be a point of departure?

This is the difficult question that Marx raises and Moseley does not address in his macro-monetary theory. This would not in itself be a fault, what is problematic is that Moseley simply obliterates this question, substantially dismissing it as irrelevant. Several scholars have shown more consideration about the analysis developed by Marx in Chapter 10; here I can only mention a few of them, starting from the classic works of Rosdolsky

¹⁸ "Marx's theory of prices of production and the equalisation of profit rates is based on the premise that the *general rate of profit itself* (to which individual rates of profit are equalised) *is determined logically prior to the determination of prices of production*, and is *taken as given* in the theory of prices of production" (Moseley 2016:90).

([1968] 1977) and Vygodsky (1974), followed by the studies of Shaikh (1990; 2008), Lee (1998), Fineschi (2001), Bellofiore (2005), Freeman (2011), Burns (2016), Kristjanson-Gural (2005 and 2017). A strong line of support for this reappraisal can be found in Marx's published works and in his manuscripts; in a forthcoming book I devote a full chapter on this issue.

Moseley emphasizes the messy condition of the 27-page excerpt and still he is ready to mention it in support of his interpretation, however, at the same time, he does not consider the entire chapter 10 of KV3 sufficiently developed; this chapter is clearly at odds with the idea of a given general rate of profit, *definitively* predetermined at the level of abstraction of the first two volumes of *Capital*. Indeed, the whole analysis of the redistribution of capital across the various spheres of production developed by Marx in this chapter would not make sense if in his view the individual capitalist could simply apply the general rate of profit to his capital advanced, or if Marx had been interested to the long run *equilibrium* prices of production, as suggested by Moseley. In this chapter Marx develops a promising attempt to discuss the *process of tendential* equalization of the industries' average rates of profit to the general rate of profit. During this *process* the profit adjustment cannot be assumed as already actual, otherwise, by definition the process of equalization should be considered already completed.

Throughout the process of tendential equalization the general rate of profit is clearly affected by the changing redistribution of capitals from one less remunerative industry to other more remunerative industries, in turn this changing distribution affects the turnover times and the value composition of the capitals advanced, in a circular spiral where each factor is intertwined with the others. Indeed, in *Money and Totality* Moseley does mention a clear passage from Chapter 9 (KV3:262-3) and he repeats more than once that the distribution of capital across industries affects the general rate of profit (Moseley, 2016:91-3), nonetheless, these correct remarks do not really play any role in his interpretation of Marx's prices of production and he assumes that the distribution of capital across industries is also given. In this way Moseley restricts his analysis only to the long run equilibrium condition, however, there is no reason to assume that this was also Marx intention.

I agree that the excerpt from Marx's manuscript does not address the description of the equalization process, however, as the examples above show, this should not imply that he was not interested in considering the decomposition of profit adjustment as a means of better understanding this process, or the changes that occur in the average rates of profit of industries, as well as consequently in the general rate of profit. A condition of *ceteris paribus* can only be set provisionally, as an analysis expedient (not all problems can be addressed at the same time), to consider a one-sided aspect of the reproductive process and facilitate its description: Take the general rate of profit as given, then determine the profit adjustment necessary to reach the equalization. This is legitimate. And yet: *How* does this adjustment take place? Did Marx ever raise this question? The answer is a strong yes, he did. What else is the process of equalization if not the description of the changes that this adjustment entails? Even at the highest level of abstraction, when describing the social reproduction of capital, one has to take into account not just a specific condition, but the whole process.

What is perhaps even more important for the understanding of Marx's decomposition of profit adjustment is Moseley reference to KV2 ("*the general rate of profit is taken as given, as determined by the prior theory of the total surplus-value in Volumes 1 and 2 [my emphasis] of Capital*" (Moseley, 2019:153)). The alleged determination of the total surplus value before the process of redistribution takes place (that is essential in Moseley's interpretation) clashes with the analysis developed by Marx in KV2.

In fact, the methodological remark of my previous examples applies as well to the relations between productive capital and capital of circulation. Of course, since Marx

distinguishes between the sphere of production and the sphere of circulation, by definition, wherever the demarcation line is drawn between these two spheres, it follows that surplus value can only be produced in the sphere of production (KV2:135-6):¹⁹

Industrial capital is the only mode of existence of capital in which not only the appropriation of surplus-value or surplus-product, but also its creation, is a function of capital.

In this sense, the analysis of the sphere of production, with its results, can be considered theoretically posited before the analysis developed in the second volume, so that surplus value can be considered as given before its circulation, *leaving aside the changes that could occur in the turnover periods of capital*. However, the fact remains, that for a complete understanding of the overall process of social reproduction, it is then necessary to take into account the intertwining of production and circulation processes. Capital invested in the sphere of circulation not only facilitates the realization and redistribution of previously produced surplus value, but also facilitates the acquisition of the conditions for the production of new surplus value, in this way it also affects the possibilities of producing surplus value (KV2:203-4):

The expansion and contraction of the circulation time hence acts as a negative limit on the contraction or expansion of the production time, or of *the scale on which a capital of a given magnitude can function* [my emphasis]. The more that the circulation metamorphoses of capital are only ideal, i.e. the closer the circulation time comes to zero, the more the capital functions, and the greater is its productivity and self-valorization. If a capitalist works to order, receives payment on the delivery of his product, and is paid in his own means of production, then his time of circulation approaches zero.

Capital's circulation time generally restricts its production time, and hence its valorization process. Moreover, it restricts this in proportion to its duration. *This can increase or decrease very considerably, and hence restrict the production time of capital to a very different degree* [my emphasis].

If we drop the assumption of uniform turnover times (as Marx does in KV2), *we can no longer assume* (as done by Moseley) *that the process of redistribution of surplus value occurs for all capitals during the last stage of the social process of reproduction of capital*. This process necessarily takes place *throughout the entire period of reproduction* considered and inevitably affects the conditions of production of the surplus value produced in the period and vice versa.²⁰ The interplay between the phases of production and circulation of different but connected parts of capital advanced cannot help but affect the amount of surplus-value produced. In the $C - M - C$ exchanges between capitalists, buyers start new turnover periods, whereas sellers complete, at least in part, one of their turnover periods, and given the differences between the turnover times these exchanges are usually repeated several times during the period considered (all the more so if we refer to the long run as Moseley does). This means that *the redistribution of the total*

¹⁹ "Circulation time and production time are mutually exclusive. During its circulation time, capital does not function as productive capital, and therefore produces neither commodities nor surplus-value. If we consider the circuit in its simplest form, so that the entire capital value always moves at one stroke from one phase to the other, then it is obvious that the production process is interrupted, and with it therefore the self-valorization of capital, so long as its circulation time lasts, and that according to the duration of the latter, the production process will be repeated sooner or later" (KV2:203).

²⁰ See the short Appendix II.

surplus-value does not take place at the end of the period. It takes place throughout the entire period of reproduction considered and the interplay between the phases of production and circulation of different but connected parts of capital advanced cannot help but affect the amount of surplus-value produced. If we want to understand the formation of the general rate of profit, we can consider it as given before the start of the process of redistribution of surplus value only as a provisional assumption, as done by Marx in the tables of Chapter 9 of KV3.

In summary, it seems to me that Moseley's interpretation constrains Marx's decomposition of profit adjustment to a very restrictive reference to a condition of equilibrium. Within this condition, the profit adjustment related to capital turnover boils down only to an additional logical explanation of why the industries' value rates of profit are different from the general rate of profit. In this way, we miss the opportunity to develop Marx's analysis and to improve our understanding of the different factors influencing the imbalances characterizing the process of equalization in the long run. The qualification of this process with the term 'equilibrium' is misleading because it adds a *predetermined* result to the equalization which in itself is a process during which the continuous, *dynamic*, formation of the general rate of profit takes place at the same time.

7. A dynamic interpretation of Marx's profit adjustment

Marx made it clear that understanding the equalization process is about the formation of the general profit rate based on the different average profit rates of industries, and he did raise the really important question (MMV3:285): how does the equalization (the adjustment process) take place?

This question leads to many others. What happens to the conditions of production and circulation of the surplus value produced during the period? How is it possible to describe the process of transition and the related prices of production from one technological and social configuration of capital reproduction to the next (different) ones? Does not this process take time, does it involve the accumulation process? What happens in the meantime to turnover times and prices of production? Do they simply change all at once from one level to another? Should not it be better to take into account that the reproduction of capital is characterized by an ever-renewed revolution in the methods of production (and circulation)?

Most scholars dismiss these questions too easily or seem uninterested in discussing them. Indeed, in KV3 Marx qualifies the equalization by referring to it as the *tendency* to equalization, the (temporal) *process* of equalization, as the tendency of equalization between particular rates of profit (KV3:488; MMV3:469): "The general rate of profit, on the other hand, *only ever exists as a tendency, as a movement* [my emphasis] of equalization between particular rates of profit." Similar passages can be found in the *Economic Manuscript of 1861-1863*. The process of equalization takes time and it is not by coincidence that Marx refers to the prices of production as the long-run condition of supply (MMV3:307-8; KV3:300).²¹

Nowhere does Marx argue that the tendential character of economic laws obliterates the changes that occur in the social reproduction of capital, or that *these laws can actually take place without significant changes in the social reproduction of capital*. When describing the equalization process, for example, he does refer to "the laws governing the rise and fall of the rate of profit, developed in Chapter One" (MMV3:281; KV3:269). Before the movement in the various spheres of production consolidates to affect the level of the general rate of profit "there is room for shorter or longer periods in

²¹ Even though Moseley's interpretation of the equalization process refers to a long run process, the theoretical issue at stake is that he adds the qualification of long run *equilibrium*, assuming that during its duration nothing happens except the fluctuations of market prices.

which the profit rate in that sphere rises, falls, and rises again" (MMV3:281). The general rate of profit is always a result of these changes, a ceaseless process of formation (MMV3:284).

The divergences between the annual average rates of profit across industries should be considered the normal condition of reproduction, their equalization could possibly be reached by chance or approximated over a long period ("the cycle of fat and lean years" suggested by Marx (KV3:310, 300; same passages in MMV3:313-4, 307-8; see also [1861-1863] 2010, Volume 32:459-60)). It is one thing to argue that the equalization of profit rates can be achieved, and quite another to argue that it is the normal condition through which the process of social reproduction of capital is realized.

The main point I want to raise concerns the appropriate *level of abstraction* necessary to describe Marx's theory of prices of production. Is competition, "the action of the different capitals upon each other" (MMV3:49), realized only through the fluctuation of market prices as Moseley and other scholars claim? Does competition intervene only *post-festum* (in the circulation of commodities), or does it also play a role *intra-festum* or even *ante-festum*? If the controversial debate on the alleged problem of transformation of values into prices of production has mostly chosen to consider only the condition of equilibrium – with the further restrictive assumptions of equal turnover times and equal real rates of profit under a regime of simple reproduction – this does not mean that we must be satisfied with this choice. Marx's theory of prices of production and the interpretation of the profit adjustment should not be reduced to an abstract condition of equilibrium.

Moseley writes that "in order to equalize the rate of profit of [a given industry] with the general rate of profit, a 'profit adjustment' *must* [my emphasis] be added to the surplus-value produced by [this industry]" (Moseley, 2019:150-1). In my view, it is exactly the qualification of this necessity that constitutes a decisive divide with Moseley's interpretation. How does this 'must' become effective? Does this adjustment take effect instantaneously or, otherwise, does it take time, even a long (historical) period of time? I do not think it is possible to ascribe the first option to Marx (Wolff, Roberts, and Callari, 1982:572 note 14).

In Moseley's interpretation the *only* factor considered is the fluctuation of market prices; they should provide the means through which the surplus value produced is redistributed between capitals so that the industries' average rates of profit can be equalized. Is this factor sufficient or even the only factor considered by Marx? Clearly, it is not so (Marx, [1861-1863] 2010, Volume 32:460):

Mere fluctuations — below and above [prices of production] — if they do not exceed the average extent and do not assume extraordinary forms, *are therefore not sufficient* [my emphasis] to bring about a TRANSFER OF CAPITAL ..."

Marx repeatedly refers to the migration of capital from spheres of production less remunerative to spheres with higher average rates of profit (MMV3:469; KV3:488-9):

The general rate of profit, on the other hand, only ever exists as a tendency, as a movement of equalisation between particular rates of profit. The competition between capitalists – which is itself this movement of equalisation – consists here in their withdrawing capital from those spheres *where profit is below the average for a long period* [my emphasis], and injecting it into spheres where it is above this level; or, alternatively, in their dividing additional capital between these spheres in varying proportions. There is a constant variation in the injection of capital into these different spheres.

Same reasoning in Marx (MMV3:305-6; KV3:298):

This constant equalization of ever-renewed inequalities is accomplished more quickly, (1) the more mobile capital is, i.e. the more easily it can be transferred from one sphere and one place to others; (2) the more rapidly labour-power can be moved from one sphere to another.

The reasons of this reference to the migration of capital is clear: capitalists cannot simply keep their capitals in their sphere of production applying the average rate of profit as a mark-up to their money-capital advanced because 1) the general rate of profit effectively realized in the long run is unknown, it can be determined only at the end of this period,²² 2) capitalists always pursue the best possible rate of profit and in doing so modify the conditions of reproduction of their capital, 3) market prices fluctuations are mainly a *consequence* both of this attempt and of capital migration. It is not therefore an accident that Marx refers to the “continual transfer of capital from one sphere to another, where profit stands above the average for the time being” (MMV3:313-4; same passage in KV3:310; see also [1861-1863] 2010, Volume 32:459-60):²³

It has been said that competition equalises profit rates between the different spheres of production to produce an average rate of profit, and that this is precisely the way in which the values of products from these various spheres are transformed into prices of production. This happens, indeed, by the continuous transfer [of capital] from one sphere into the other. Something that must be considered here, however, is the succession of years of prosperity and dullness in a given branch of industry, during certain epochs, and the oscillations of profit that these involve. This continuous emigration and immigration of capital from, and to, the different spheres of production, is constantly acting, and constantly trying, to reduce profits to the common and general level by an alternation of ups and downs equalising each other within a certain time.

The possibilities to realize this “continuous emigration and migration of capital” hinge upon the capital tied up in the sphere of production and the different composition of capitals (Marx, [1861-1863] 2010, Volume 32:460-1):

the speed of the equalisation process, whether it is quicker or slower, depends on the particular organic composition of the different capitals (more fixed or circulating capital, for example) and on the particular nature of their commodities, that is, whether their nature as use values facilitates rapid withdrawal from the market and the diminution or increase of supply, in accordance with the level of the market prices.

The different composition of productive capital with its different turnover times affects the equalization process, a process that can never reach a point of rest and unfolds with ups and downs throughout the business cycle (“the succession of years of prosperity and dullness in a given branch of industry” (MMV3:313). Furthermore, precisely because of the limiting factor represented by the money already invested in fixed capital, Marx emphasizes the importance of credit and of the accumulation process. The redistribution

²² In the meantime, capitalists will consider the general rate determined in the past (KV3:489-90) and its current level, as well as its expected changes, as a reference for measuring their success and for deciding how to proceed in their accumulation process.

²³ There are several other places where Marx clearly refers to the essential role played by the migration of capital from one industry to another (for example, MMV3:749; same passage in KV3:895-6), especially during the accumulation process. This migration implies that the role played by the commodity capital and the money-dealing capital has a decisive impact through the phenomenon of turnover on the possibilities for the industrial capital to create surplus-value.

of credit is particularly important and Marx seems to attribute to the new capital an even more important role for the equalisation of the rates of profit, compared to the role played by the migration of already existing capitals (Marx, [1861-1863] 2010, Volume 32:460-1):

it is the inflow of new, ADDITIONAL capital, even more than the redistribution of capital already invested, that equalises the distribution of capital in the different spheres. The *SURPLUS PROFIT* in the different spheres, on the other hand, is discernible only by comparison of the market prices with cost prices. As soon as any difference becomes apparent in one way or another, then an outflow or inflow of capital from or to the particular spheres [begins]. Apart from the fact that this act of equalisation *requires time* [my emphasis], the average profit in each sphere becomes evident only in the average profit rates obtained, for example, *over a cycle of 7 years* [my emphasis], etc., according to the nature of the capital. Mere fluctuations — below and above — if they do not exceed the average extent and do not assume extraordinary forms, *are therefore not sufficient* [my emphasis] to bring about a TRANSFER OF CAPITAL, and in addition the TRANSFER of fixed capital presents certain difficulties. Momentary booms can only have a limited effect, and are more likely to attract or repel ADDITIONAL CAPITAL than to bring about a REDISTRIBUTION of the capital invested in the different spheres.

Beside the crucial reference to the importance of credit, a decisive point taken up by Marx in this passage is the temporal dimension and the distinction between fixed and circulating capital to which he refers when he discusses the average rates of profit for each sphere; here he mentions a cycle of 7 years, elsewhere he considers even 13 or 10 years.²⁴ The length of the industrial cycle can be different for the various spheres of production and can of course change in different stages of development.²⁵ What matters is not to establish a certain duration, because this can vary, but rather to refer to a concrete time frame, along which different average annual profit rates are achieved at different stages of the cycle. *The equalization process, therefore, will not leave unchanged the key components of the rate of profit, namely the turnover time, the composition of capital, and the real rate of surplus-value* (on the changes of the real rate of surplus value throughout the business cycle see Chapter 25 of KV1, 'The General Law of Capitalist Accumulation', and especially Section 3, devoted to the industrial reserve army (KV1:771-2, 782-5)):

²⁴ In a note on Corbet are mentioned ten years (MMV3:278, note 10), see also the passage from KV2 (264) and Marx (2010 [1861-3]:241-2). In his Introduction to KV2, in a short passage (KV2:73-74), Mandel underscores the importance of the turnover of fixed capital for the trade cycle and mention a period of 7 to ten years. In a famous letter dated March 2, 1858, Marx asked Engels how long was the period for the replacement of machinery, because this was "one important factor in explaining the multi-year cycle which has been a feature of industrial development ever since the consolidation of big industry". The answer from Engels came straight away on March 4, with several details, and Marx was satisfied by this reply because, as he wrote in his letter to Engels on March 5 (Marx, 2010, Volume 40:277-282): "The figure of 13 years corresponds closely enough to the theory, since it establishes a *unit* for ONE EPOCH OF INDUSTRIAL REPRODUCTION which *plus ou moins* coincides with the period in which major crises recur..."

²⁵ "Until now the duration of these cycles has been ten or eleven years, but there is no reason to consider this duration as constant. On the contrary, we ought to conclude, on the basis of the laws of capitalist production as we have just expounded them, that the duration is variable, and that the length of the cycles will gradually diminish" (passage inserted by Marx in the French edition of KV1 (786)).

The path characteristically described by modern industry, which takes the form of a decennial cycle (interrupted by smaller oscillations) of periods of average activity, production at high pressure, crisis, and stagnation, depends on the constant formation, the greater or less absorption, and the re-formation of the industrial reserve army or surplus population. In their turn, the varying phases of the industrial cycle recruit the surplus population, and become one of the most energetic agencies for its reproduction.

If some doubts still remain on Marx's intention to analyse the dynamic of the equalization process even in the years he wrote the main manuscript for the third volume of *Capital*, it should suffice to refer to the attempt he makes in chapter 10 where he distinguishes between competition *within* and *across* the various industries, using the categories of individual value and social value of commodities that he will also use in the first volume.²⁶ Finally, as I mentioned in the Introduction, Marx had not been able to take into account the analysis of turnover in the second part of the manuscript for the third volume of *Capital* ("since Book Two, which is devoted to discussing this [circulation time], has not yet been written" (MMV3:261)), even though he was well aware of its importance for the determination of prices of production.

Marx's notes on the decomposition of profit adjustment can therefore be rightfully ascribed to his long-lasting research project to describe the economic law of motion of capital. Here I can only suggest a short outline of an alternative interpretation of these notes relating them to the description of the process of formation of the general rate of profit and of prices of production.

The formation of the general rate of profit is the result of conflicting forces generating a persistent imbalance that could possibly equalize the averages of the different rates of profit annually achieved over the long run (the business cycle). The centripetal force exerted by the law of competition pushes the capitals with different rates of profit *within* the same sphere of production and *across* the other spheres of production towards the more profitable opportunities (Chapter 10 of KV3). As far as the composition of the capital already invested allows, there is a migration towards the more profitable spheres of production. Above all, the general conditions of credit can facilitate the investment of additional capital in these spheres of production. In more profitable spheres new competitors and higher accumulation growth rates can flood the market with additional commodities, in less profitable spheres the supply can shrink. These changes affect the turnover times, decreasing (increasing) them in the spheres that receive (originate) the inflow (outflow) of new capitals and *consequently* market prices fluctuate towards lower levels (higher) in the spheres with increasing (decreasing) supply. Furthermore, with the changing distribution of capitals across the spheres of production, the levels of average productivity change (even in the case of constant technology (De Marco, 2021)), as well as the levels of capacity utilization. These modified conditions and the new distribution of capitals change in turn the industries' average value rates of profit, as well as the general rate of profit (KV3:269; MMV3:281).

²⁶ In each sphere of production, for each condition (or method) of production, Marx always refers to the *individually* necessary labour-time employed in the specific processes of production. The more efficient producers, with the most favourable conditions of production, produce commodities with a lower individual value compared to the average, whereas the producers with the worst conditions produce commodities with a higher individual value. Proceeding from these different individual values, the pressure between buyers and sellers determines one uniform (though fluctuating) market price for all commodities of the same kind, and one common, social, value for each commodity, so that the unit value is the same for all commodities, because each commodity is a representative unit of the total value of commodities of the same kind (MMV3:290-1).

At the same time, the drive towards the best possible rate of profit that is characteristic of the process of accumulation of capital (“the unceasing movement of profit making” (KV1:254)) determines the centrifugal force that feeds accumulation processes associated with the introduction of new technologies; these latter modify and revolutionize the process of production and circulation of capital, as well as the process of valorisation and the determination of socially necessary labour, so that the differences between profit rates are ceaselessly renewed.

The average turnover times of industries, their real rates of surplus value, and their average organic compositions of capital are thus part of the changing conditions and outcomes that result from a circular, spiralling process throughout the business cycle of industrial capital. The industries’ average rates of profit will therefore also change in relation to the different phases of this cycle. The general rate of profit is thus the moving centre towards which the average rates of profit of industries tend, so that the reciprocal differences due to different turnover times, organic compositions and real rates of surplus value may compensate each other on average during the business cycle, these differences are also transformed by the accumulation processes and the related changing distribution of capitals among industries.

My dynamic interpretation of Marx’s decomposition of the profit adjustment is that the breakdown in (XIII) describes the changes that *might* occur during the long-run equalization process as a consequence of the different organic compositions and the different number of turnovers of variable capital advanced, as well as of the different real rates of surplus value.

For a given industry “ i ”, if we consider the sum of the succession of annual profit adjustments of a business cycle (let us assume it lasts T years) and we include the changes in the real rate of surplus value, equation (XII) can be rewritten as follows:

$$A_i^{*T} = \sum_{t=1}^T A_{it}^* = \sum_{t=1}^T \left(\frac{s'_t n_t}{q_t + 1} - \frac{s'_{it} n_{it}}{q_{it} + 1} \right) C_{it} \quad (\text{XXI})$$

Labelling Q_t the ratio $1/(q_t + 1)$ and Q_{it} the ratio $1/(q_{it} + 1)$, the equation for A_i^{*T} becomes:

$$A_i^{*T} = \sum_{t=1}^T (s'_t n_t Q_t - s'_{it} n_{it} Q_{it}) C_{it} \quad (\text{XXII})$$

We can write n_t in terms of n_i and Δn_i , Q_t in terms of Q_{it} and ΔQ_{it} , s'_t in terms of s'_{it} and $\Delta s'_{it}$, so that $n_t = (n_{it} + \Delta n_{it})$ and so on:

$$A_i^{*T} = \sum_{t=1}^T [(s'_{it} + \Delta s'_{it})(n_{it} + \Delta n_{it})(Q_{it} + \Delta Q_{it}) - s'_{it} n_{it} Q_{it}] C_{it} \quad (\text{XXIII})$$

Developing (XXIII) we have:

$$A_i^{*T} = \sum_{t=1}^T [s'_t (\Delta n_{it} Q_{it} + \Delta Q_{it} n_{it} + \Delta Q_{it} \Delta n_{it}) + \Delta s'_{it} Q_{it} n_{it}] C_{it} \quad (\text{XXIV})$$

In my interpretation of Marx’s theory of prices of production, the equalization process may compensate the imbalances of a given industry’s average rates of profit ($r_{it} = s'_{it} n_{it} Q_{it}$) compared to the changing general rate of profit ($r_t = s'_t n_t Q_t$), so that the overall sum of profit adjustments in (XXIV) may be close to zero, as long as the general rate of profit is determined only for those industries where there are not artificial or natural monopoly (MMV3:749, 925; KV3:1001, 895-6). Indeed, equation (XXIV) should be further developed as it does not explicitly consider the distinction between industrial capital and circulation capital and the impact of the accumulation process discussed in De Marco (2023a).

8. Conclusions

For Marx, the divergences in terms of organic compositions, turnover times, and real rate of surplus-value are part of the normal conditions of social reproduction. The process of reproduction is therefore characterized by divergences between the average rates of profit of the various industries and the slowly changing level of the general rate of profit. These divergences are modified under the pressure of competition and of the drive to improve the rates of profit through capital transfers and changes in capital accumulation so that the equalization of profit rates could be achieved only by chance or ultimately approximated over the business cycle.

The profit-adjustment decomposition sketched out in Marx's *Economic Manuscript of 1867-1868*, is an attempt to distinguish the influences of the different components that intervene in the dynamic formation of the industries' average rates of profit. I showed the limits of this attempt and provided an alternative decomposition based on the analysis developed by Marx in KV2. I have also argued against Moseley's claim that the excerpt brings support to his long-run equilibrium interpretation of prices of production and I suggested a long-run non-equilibrium interpretation.

Besides Marx's theory of prices of production, the oblivion of the analysis of the turnover of capital has been detrimental to the understanding of the relationship between industrial capital, commercial capital and money-dealing capital as Veronese Passarella and Baron recall (2015:1430-32). Commodity capital or money-dealing capital cannot create value, however, to the extent that their activities reduce (or increase) the circulation time of industrial capital, they allow a shorter (longer) period of reproduction for the money-capital advanced by industrial capitalists (KV2:203-4). In this respect, the forms assumed by capital in the process of circulation interact decisively with the results that can be obtained by industrial capital and capital at large (Marx, 1973:538-9). The analysis of the variations that occur in the turnover times can help us to describe and understand the ever-changing relationship between industrial capital and the other forms of capital that intervene in the circulation process, as well as the movement of the general rate of profit.

Appendix I

I will focus on the more general case considered by Marx ([1867-1868] 2019:174-90). In summarizing Marx's equations, I closely follow the very useful presentation made by Moseley (2019) in his introduction. I list below the assumptions and definitions used by Marx in the excerpt (all variables must be considered in their money form), because they are not that common (as the "rate of profit related to the cost price", usually called 'profit margin' in the literature; or the "composition of the cost price" that refers to the composition of production costs, called by Marx "composition of the capital functioning within the process of valorisation"):

- (A) The capital advanced in a given industry " i " and a capital of average composition, whose value rate of profit is, therefore, equal to the general rate of profit, taken as a term of comparison, are assumed to be equal ($C_i = C$).²⁷
- (B) The turnover time of capital advanced, given by the weighted average of the turnover time of fixed capital and circulating capital, is equivalent to the ratio of capital consumed during the year (the annual cost price K_i) to capital advanced (C_i), therefore, given by K_i/C_i .²⁸ In his examples, Marx assumes

²⁷ In his introduction, Moseley (2019:148 note 7) refers to the comparisons made by Marx considering the individual capital of a given industry and the 'total' social capital (instead of a capital of average composition). Actually, in his text Marx never uses the term 'total social capital'. Indeed, in Marx's numerical examples, it would make no sense to assume that the social capital advanced were equal to the individual capital advanced, if by social capital he really meant the 'total' social capital.

²⁸ In his examples, Marx always assumes the same turnover time for the fixed capital (10 years).

that the turnover of capital of average composition is equal to one year, $K/C = 1$.

- (C) The rate of surplus-value is the same for individual capital and capital of average composition and is equal to 1.
- (D) The composition of annual cost price is determined by the ratio $(K_i - V_i)/V_i$ (fixed and circulating constant capital consumed during the year $(K_i - V_i)$ over the variable capital V_i applied or turned over during the year).
- (E) The rate of profit related to cost price (or profit margin) π_i is defined by the ratio of surplus-value to industry production costs, $\pi_i = S_i/K_i$; in the case of capital of average composition this rate is equal to the general rate of profit: $\pi = S/K = S/C = r$ (since $K = C$ from assumption (B)).

The *total profit-adjustment* (A_i) is given by the difference between the prices of production P_i and the value of commodities sold W_i :

$$\begin{aligned} A_i &= P_i - W_i \\ A_i &= K_i + rC_i - K_i - r_iC_i \\ A_i &= (r - r_i)C_i \end{aligned} \quad (1)$$

For a given real rate of surplus-value, the adjustment due to the difference between the general rate of profit and the individual industry's (value) rate of profit in (1) is decomposed by Marx into three subcomponents, the adjustments due to the differences between the turnovers of capital advanced, to the different compositions of the annual cost prices, and to their combined effect: A_i^t , A_i^c , and A_i^{tc} . The rationale behind this decomposition is the attempt to distinguish between the independent factors that explain the difference in (1).

$$A_i = A_i^t + A_i^c + A_i^{tc} \quad (2)$$

How are these adjustments determined? For unequal turnovers of capital advanced, Marx assumes the *ceteris paribus* standard condition of equal rates of surplus-value and furthermore that the annual cost price composition of an industrial capital is equal to that of capital of average composition so A_i^t is determined as follows:

$$A_i^t = (C_i - K_i)\pi_i \quad (3)$$

If the average turnover time of the industry "i" is equal to the turnover time of the social capital, it will be $K_i/C_i = 1$ (see assumption (B)) and there will be no need for a profit adjustment, in fact, in this case, $A_i^t = 0$. If the turnover of the industry is faster-than-average (greater than 1, for assumption (B)) it will be $K_i > C_i$ and, therefore, $K_i > K$ (since $C_i = C = K$ for assumptions (A) and (B)), this means that this individual industry produces, on average, more surplus-value than the social capital (with, of course, a higher-than-average value rate of profit) and the profit-adjustment A_i^t will be negative.

For the adjustment related to unequal compositions of the annual cost prices, Marx assumes equal rates of surplus-value and average turnover time of the individual capital equal to that of the capital of average composition, so A_i^c is determined as follows:

$$A_i^c = (r - \pi_i)K_i \quad (4)$$

At first sight, this formula might appear awkward, because it compares the general rate of profit r with the profit margin π_i , however, taking into account definition (E) and assumption (B), $r = \pi$, therefore, under this assumption, formula (4) compares the profit margin of the average capital π and that of industry "i". To better see the relationship between the profit margin π and the composition of the annual cost price of capital $(K - V)/V$, it suffices to consider that using the definition of the rate of surplus-value $s' = S/V$ we can write:

$$\pi = \frac{S}{K} = s' \frac{V}{K} = s' \frac{V}{K - V + V} = \frac{s'}{(K - V)/V + 1} \quad (5)$$

Assuming as given the rate of surplus-value, $s' = 1$, as Marx does (assumption (C)), the profit margin π depends only on the composition of the annual cost price $(K - V)/V$. If the industry's composition of the annual cost price is equal to that of the capital of average composition, then π_i will be equal to π and therefore to the general rate of profit (from (E), $\pi = r$), r so that $A_i^c = 0$. If the composition of the annual cost price of a given industry is higher-than-average ($\pi_i < \pi = r$), this industry produces less surplus-value than the social capital (with a lower-than-average value rate of profit) and the profit-adjustment A_i^c will be positive.

The adjustment A_i^{tc} , necessary to compensate for the combined effect of unequal compositions of the annual cost prices and unequal turnover times of the capital advanced, is determined as follows:

$$A_i^{tc} = (r - \pi_i)(C_i - K_i) \quad (6)$$

If the partial adjustments due to the difference in turnover times and to the difference in compositions of the annual cost prices have the same sign, (6) will also be positive and will increase the total adjustment, otherwise, if the two differences partially compensate each other, their combined effect will have a negative sign.

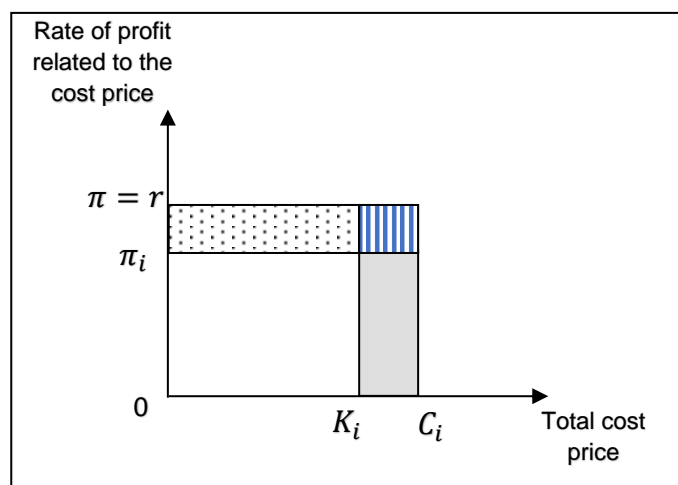
Finally, from (2)-(6) the *total profit-adjustment* A_i is:

$$A_i = (C_i - K_i)\pi_i + (r - \pi_i)K_i + (r - \pi_i)(C_i - K_i) \quad (7)$$

By carrying out the products, it is easy to verify that $A_i = rC_i - \pi_i K_i$, and from definition (E) ($\pi_i = S_i/K_i$), we have $A_i = (r - r_i)C_i$.

To better understand how expression (7), it may be useful to resort to a graphical representation that describes the four subcomponents that should be added to the cost price K_i to obtain the prices of production. In the following Figure 1, as well as in Marx's numerical example, it is supposed that the price of production is greater than the total value produced in the industry (both for the slower turnover time (with $K_i < C_i$) and for the higher composition of its annual cost price (with $\pi_i < \pi = r$), as well as for their combined effect).

Figure 1. Excerpt decomposition of total profit-adjustment



The innermost rectangle in *Figure 1* represents the surplus value $S_i = \pi_i K_i$ (by definition of π_i , see point (E)). The other rectangles show the profit adjustments that the individual industry should add in order to equalize its rate of profit to that of a capital of average composition (here assumption (A) is crucial, for which $C_i = C$ and, therefore, $rC_i = rC$). The grey rectangle represents the profit adjustment that should be made to compensate for the slower-than-average turnover time of the capital advanced in the individual

industry. The dotted rectangle represents the profit adjustment necessary to compensate for the higher-than-average composition of the annual cost prices. Finally, the striped rectangle represents the combined effect of the higher composition of annual cost price and of the slower turnover time of the individual industry compared to those of capital of average composition.

Unfortunately, the previous decomposition is based on some very simplifying assumptions. Once these assumptions are relaxed, the rationale behind this decomposition dissolves. It suffices to consider the formula for the adjustment due to unequal turnovers when $K/C \neq 1$ (relaxing assumption (B)). If, for example, $C_i = K_i$ the industry's turnover time is equal to 1 and the adjustment for the industry's turnover is equal to zero (from (3)), this does not imply that the turnover of capital of average composition is equal to 1 (since assumption (B) no longer holds).

On the other hand, considering the formula of the adjustment due to the differences between the annual compositions and relaxing again assumption (B), so that C can be different from K , it follows that the profit margin $\pi = S/K$ is not necessarily equal to the rate of profit $r = S/C$ (since $K \neq C$); this means that formula (4) no longer compares the annual composition of the cost price of the industry with that of capital of average composition (since $\pi \neq r$).²⁹

Actually, in addition to these limits relating to simplifying assumptions, there are two more serious problems regarding the appropriateness of the decomposition sketched out by Marx. It is also possible that Marx realized the origin of these problems and did not complete the drafting of the excerpt just because he preferred to work on the manuscripts subsequently used by Engels for editing KV2, where he deepens his analysis of the circulation time of capital and refers to a different (and today better known) definition of the organic composition of capital.

The first problem arises because the annual composition of cost price is not independent of the turnover time of circulating capital. If we call n the annual number of turnovers for the circulating capital, k^f the quota of fixed capital consumed in each turnover and k^c the circulating constant capital advanced and consumed in each turnover, the annual composition of cost price becomes the following:

$$\frac{K - V}{V} = \frac{(k^f + k^c + v)n - vn}{vn} = \frac{k^f + k^c}{v} \quad (8)$$

If k^F is the fixed capital advanced and y is the number of years that this fixed capital will be used, we have:

$$k^f = \frac{k^F}{yn} \quad (9)$$

The quota k^f of fixed capital consumed in each turnover is affected by the number n of turnovers of circulating capital, the same can be said for y . For a given fixed capital k^F , the annual composition of cost price in (9) is *thus not independent* of the turnover time of circulating capital, as it should be in a breakdown that aims to *separate* the influences of its subcomponents; on the other hand, the turnover of the total capital advanced is not independent of its composition.

The second problem concerns the turnover of capital advanced K/C , in this turnover constant capital and variable capital are not distinguished. It is easy to verify that what matters for the determination of the rate of profit is the turnover of variable capital. Even with equal number of turnovers and equal composition of cost price, and

²⁹ Fred Moseley has shown in private correspondence that Marx's assumptions can be relaxed and Marx's equations for the decomposition of profit can be generalized after a few changes. I hope that in a response to this article he will discuss his generalization of Marx's decomposition as an alternative to the one I am suggesting here.

equal rates of surplus value, two capitals will have different rates of profit if their value compositions are different.

Appendix II

Moseley describes his macro-monetary interpretation as based on the temporal succession of the three stages of the money-capital circuit, assuming uniform turnover times, uniform rates of surplus-value, and no change in labour productivity. He argues that surplus value should be considered as given before its redistribution takes place; this is to some extent right but it needs to be qualified. In fact, when the assumption of uniform turnover time is dropped, or even when the social reproduction of capital encompasses the accumulation process, it is no longer arguable that the process of redistribution does not affect the conditions of production of surplus value (KV2:203-4).

In Moseley's interpretation *all* money capitals advanced start at the beginning of the (long) period considered and complete their turnover at the end of the period. The main problem with this interpretation can be summarized as follows (for a more extensive analysis see De Marco (2021)). Each money capital advanced in the first stage of its turnover can only purchase commodities produced in the *previous* period because the production of the period considered has not yet occurred, therefore, the prices (of production?) at which the exchanges are realized in this stage are based on the production of the *previous* period (the same argument is used in Freeman (2019)). What happens to the conditions of production of the *new* surplus value that will be produced in the period? These conditions will not change (and the surplus value produced, the general rate of profit, as well as the prices of production, will be the same as in the previous period), only if simple reproduction is also assumed for the previous period, for the current period, and for the succeeding one. In fact, the commodities produced will be sold only in the first stage of the succeeding period, therefore, we can safely assume that this stage proceeds without any change only if the conditions of production of the following period will also be the same. In this case, there will be no way to distinguish the results of the new period from the results of the previous one, so that the reference to the long run made by Moseley remains a purely logical condition; nothing allows us to distinguish it from a short period or from a single instant of time. There is no description of how the formation of the general rate of profit and the attendant formation of prices of production proceeds. The fluctuation of market prices to which Mosley refers does not change in any way this formation.

Indeed, there is a more general problem in using the general circuit of money capital to represent the reproduction of social capital, a problem which does not concern only Moseley's interpretation. This circuit, in fact, cannot be used because when we describe the first and last stage during which the commodities produced by all capitals are exchanged, we are using the general circuit of commodity capital $C' \dots C'$ (KV2: 468-9, 179). If we want to describe the *relationships* that are established in the circulation when capitalists anticipate their money capital to start the circuit and the *relations* that are established in the phase of realization of the commodity capital, then it is necessary to consider each time the entire exchange $C - M - C$. Marx is very explicit, both in circumscribing the use of the circuit of money capital and in indicating the circuit of commodity capital as the only one suitable for representing the social reproduction of capital. To represent the *relationships* established in the market by capitalists when they advance capital and spend revenue, as well as the *relationships* established in the stage of the sale of their commodity capital, we have to consider the total exchange $C - M - C$. Beginning the representation of social reproduction through the total circulation $C - M - C$ implies overcoming the circuit of money capital. With the circuit $M \dots M'$ we can consider the movement of an individual capital *from a subjective point of view*, i.e. we can consider the specific purpose of a capitalist, leaving aside the analysis of total circulation, exactly because we can *presuppose* the existence and the reproduction of other capitals. We can concentrate our attention on the movement of an *individual* capital

and leave the problem of total circulation in the background, *assuming* the existence of total reproduction. However, if we shift our analysis to a different level of abstraction, what was assumed as given for the movement of an *individual* capital now becomes the problem under analysis.

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