PSL Quarterly Review

vol. 74 n. 298 (September 2021)

Original article

Employment dynamics, increasing returns and Marx's falling rate of profit

SATYA PRASAD PADHI*

Abstract:

It is assumed that Marx focuses on profits that are to be realized in larger production that permits some surplus production. This understanding underpins the importance of increasing returns embedded in employment dynamics associated with larger employment bases. This organizational form not only permits increases in profits in production but also supports employment-based learning by doing-led new investment opportunities that maintain and increase such profits. (A change in organizational form, the emergence of increasing returns due to scale economies implies that the conception of profits changes from one based on employment dynamics to one that relies more on market power. Accordingly, the present paper argues that empirical analyses should not focus on a falling rate of profits as such: they should rather focus on what factors make clear the behaviour of the rate of profit, and clearly distinguish between the employment dynamics-based profits and the profits that relate more to the returns to higher fixed costs.

Panjab University, Chandigarh (India),
email: satyaprasadpadhi@gmail.com

How to cite this article:
Padhi S.P.. (2021), "Employment dynamics, increasing returns and Marx's falling rate of profit", *PSL Quarterly Review*, 74 (298): 219-245.

DOI: https://doi.org/10.13133/2037-3643/17577

JEL codes:
B5, E11, O14, P17

Keywords:
rate of profit; increasing returns; employment dynamics; scale economies; market power

Journal homepage:
http: //www.pslquarterlyreview.info

The present paper attempts to shed light on how Marx's thesis on the behaviour of the rate of profit is a concern for what constitutes a proper economic development process that can reinforce secular increases (and maintenance) of profits. In the classical tradition, Marx's focus zeros in on possible higher production that permits a surplus production that, in turn, defines the profits. Thereby, he could be in bringing in a sharp distinction between two types of increasing returns-based development processes to isolate the one that can reinforce the profits.

Proper economic development, in the present interpretation of Marx, would represent increasing returns embedded in employment dynamics associated with larger employment bases that permit a division of labour-based organizational form of production. The division of labour setting comes with specialized labour in specialized tasks and targets a larger

* Professor Carlo D'Ippoliti in numerous, long correspondences has been kind enough to provide key insights, understandings, and suggestions for improvements. The author is also indebted to the anonymous referee for helpful suggestions relating to the structure of arguments in the paper. Any remaining errors are my own.

production that permits enhanced profits (surplus production). The employment dynamics would also support new investment opportunities that maintain (and increase) such profits.

Marx enumerates how the greater employment dynamism can also induce an increased tendency towards capital labour substitution. This can indicate a change in the organizational form of production that would negate the employment dynamics-based profits generated through larger production bases.

However, the present paper would argue the focus can be on the change in the organization form of production. If so, the focus is not on profits behaviour as such, but on the nature of development processes underlying the behaviour. There is a hint in Marx that the focus shifts from increasing returns that are based on employment dynamics towards another that is based on higher fixed costs-based increasing returns to a larger scale of production.

The development economics perspective underlying Marx's thesis is neglected in the voluminous literature on the actual behaviour of profits that closely follows Marx and the importance of different factors/forces that can explain the behaviour. There is the inattention to considerations of how changes in organization form imply a change both in the conceptualization of profits and factors that can explain the behaviour. Most important perhaps, overlooked is the emphasis on the role of employment dynamics and growth of employment that can explain a higher share of profit (and rising rate of profit). For instance, the empirical bases of the rising profit in increasing returns to scale could be entirely different.

Thus, the original contribution of the paper is to underpin how organizational forms of production should be discussed as important in the study of the behaviour of the rate of profit. This focus can illustrate how changes in the organizational form not only bring in a change in the conceptualization of profits but also highlight a change in the factors underlined to make clear the behaviour. Marx's sharp focus on long run inevitable tendencies – from a growth phase marked by the employment dynamics towards one that negates these – could be oriented towards bringing into light the two different emphases on profit-making in sharp contrast. This distinction is crucial for an evaluation of the falling rate of profit thesis.

To discuss the broader economic development perspective, section 1 would concern the existing literature's emphases on the empirical bases of the behaviour of the rate of profit that can relate to Marx's thesis and the status of the rate of profit behaviour. Section 2 focuses on Marx's discussions on the organizational form that can reinforce employment dynamics-led profits and how the underlying technological dynamism also brings in changes in the organization of production. Section 3 and 4 underline the importance of investment in profits realization and in bringing in the change in organization form that would highlight different conception of profits, respectively; section 4.1 would also focus on the nature of empirics required to distinguish different forms of profits. Section 5, the concluding note, elaborates both on (5.1) the neglect of employment dynamics in the existing literature and (5.2) the broader policy conclusions on the importance of proper organizational forms of production.

1. Status of behaviour of the rate of profit: existing literature

The behaviour of the rate of profit can be studied from different theoretical perspectives (see, for instance, Trofimov, 2017). It is not possible to appraise the voluminous studies that the subject has generated. The present focus represents a selective review that can isolate

some key factors that relate to Marx's thesis on the falling rate of profit and how they make clear different phases of the rate of profit.

Marx's thesis on the falling rate of profit is based on some definitions and hypotheses. In notations, production takes place with some constant capital, c, that would include fixed capital stock and other means of production and some variable capital, v, that would refer to payments of wages to the employed labour. Given these advances towards production in a period, $c + v$, there can be some definite production (output flow) that can recoup the advances, $c + v$. However, given the contribution of c towards this output flow, labour force engaged also produce a higher output flows more than the output flow that equals $c + v$. The excess output flow, the surplus production, constitutes the profits, s. The profits become the income of the industrialists though it is the excess contribution of the employed labour force.

Given these definitions, and the importance of employment in generating surplus production, a higher labour productivity to wages should lead to a higher s / v. This in turn leads to a higher rate of profit, which would be the profits (s) divided by total advances towards production ($c + v$). However, Marx also predicts how the technological dynamism that paces the productivity growth (and the rate of profit) can give way to higher incidences of fixed capital (and constant capital), and a higher constant to variable capital (c / v, and therefore, higher $c / (c + v)$). This phase of higher capital intensity, if associated with reduced employment opportunities, results in a higher organic composition of capital (OCC). According to Marx, this phase of rising OCC, in general, would explain the secular tendencies towards the falling rate of profit.

There is literature that closely follows Marx, but notes the conditions, and the countervailing forces that would in general define the tendency of the rate of profit. Focussing on the main strands, first, Sweezy (1942) and Robinson (1963) argue Marx's causation running from the substitution of machinery for labour to a rising OCC to the falling rate of profit lacks coherence. They note Marx's reasoning would demand decreasing returns to the capital labour substitution. However, they argue Marx's thesis of inner dynamics and increased technological improvements do not support such decreasing returns. Since the increases in OCC is driven by technological dynamism, it can lead to higher labour productivity that in turn can support a higher rate of profit. Alternatively, the improvements can lead to more dynamic capital goods production at lower costs (and prices), which can lower the value of c, negating the tendency for the OCC to rise. The improvements can also permit a lower value of v, which can nullify the decreasing returns.

Heinrich (2013) suggest a situation in which the increased capital intensity (and OCC) can come with some constant (or reduced) constant capital, c, that is associated with much lower wages, v. Thereby, even if the profits, s, also remain constant, the profits wage ratio (s / v) and the rate of profit can increase. That is, the increases in s / v can counterbalance that of the increases in OCC, and result in increases in $(s / v) / (c / v + 1)$. Heinrich's argument is illustrated with the help of algebra. With an unchanged s, say, 40, and a given c, say, 100, if v were to decrease from, say 50 to 10, OCC increases, but would be associated with a higher s / v (and rate of profit).

Hardy (2016) and Morimoto (2013) note since employment is the basic source of surplus production and profits, the rising OCC and its impact of lowering of employment – the source of surpluses – results in the falling rate of profit. Taking this argument further, Patnaik (1972; 2014) provides a particular interpretation in which the motive to increase surplus in production leads firms to improve technologically. This leads to the increases in OCC,

associated with lower employment opportunities relative to supply of labour. Such tendencies support higher growth of surplus relative to wages. The thesis, as a follow-up, argues the technological superiority also leads to centralization of capital and the few firms' specific superiority. This defines a market structure where profits realization would depend on favourable right ward shift of demand curve (see Rothschild, 1947; Harcourt and Nolan, 2009).

Therefore, there can be medium term instances of a rising rate of profit when the advanced firms capture markets from others. However, the superiority also results in few larger firms capturing the existing markets from the ones/countries that lack technological dynamism, displacing them eventually (for a derived theory of imperialism, see, Patnaik, 1972). It not only leads to the concentration of wealth and finance but also creates demand constraints (disappearances of the markets to be captured). This culminates in the eventual falling rate of profit, i.e., no scope of further investment opportunities. The slowing down of growth makes clear the eventual falling rate of profit.

General literature on the behaviour of the rate of profit also highlights the role of some key factors that can concern Marx's thesis. For instance, Clark (1984) discusses how in the rising phases of labour productivity growth, prices and wages tend to move more smoothly over time, increasing profits and the rate of profit. Therefore, the rate of profit behaviour would mainly be determined by the behaviour of labour productivity, wages and price (wage) margins. In this understanding, the rate of profit at most would exhibit cyclical properties, without any evidence of long run tendency to fall as such. Following this, Woolf (1986) finds the phases of a falling rate of profit could mainly be traced to the sluggishness of real wages to adjust to periodical slowdowns in the growth of labour productivity.

On the other hand, Nordhaus (1974) argues the behaviour of price costs margin has only short run impacts. The possible long run decline in the profits shares (and the rate of profit) raises the wage issue differently. If the risk premium is declining and so also the (rental) costs of (equity) capital, the decline in this rental costs of capital to wages have been associated with low elasticity of substitution of the factors that is less than 1. This is the major factor behind the declining phase of the share of profits. However, Feldstein and Summers (1977), in response, contend most of these studies of direct observation of profits can be influenced by cyclical, capacity utilization changes. The adjustments for these to study the long run data do not show any significant decline in the rate of profit.

Further, Nordhaus is adopting a CES production function that emphasize the lower elasticity of substitution. Piketty (2014), however, asserts how oligopolistic market structure could be associated with higher spending towards knowledge capital that demands a broad definition of capital stock. This capital stock with a greater variety of specializations embedded in the CES technology and a preference for varieties can emphasize a higher elasticity of substation between capital and labour that is greater than one. This in turn would result in a higher share of capital (and the rate of profit).

The estimates of the elasticity of substitution (crucial for the estimates of R / Y) however remain controversial. Basu and Budhiraja (2020), for instance, cite estimates covering different countries (over different time periods) that indicate the elasticity should be less than one (also see Semieniuk, 2017). Much could depend on the measurement issues facing the estimates of the underlying capital stock.

At the same time, Okishio emphasizes, a focus on technological dynamism that concentrates more on labour productivity (and share of profits) as such can be problematic. For instance, the capital labour substitutions are generally driven by rising real wages and the

resultant rising OCC comes via a reduction in employment per se (see, Morimoto, 2013). He focuses rather on a technological dynamism (Okishio, 1961) that permits a decrease in unit costs of production; at a given price of the product. The reduced costs of production support higher profits, which in turn is the motive force behind such technical dynamism. If commodities are produced by commodities, say such technical coefficients underlying Sraffa (1960)'s production scheme, the competitive forces-led generalized cost and price reductions, allowing for a given real wage, can permit a higher overall rate of profit. This outcome is also consistent with an increase in the technical composition of capital, say the same investment goods used are produced with less labour time.

The above technical dynamism (and changes in technical coefficients) focuses more on circulating (or working) capital; attempts (see, Roemer, 1979) to study the general validity of the outcome when fixed capital is incorporated. However, supposing one follows Marx in which the value of capital stock just transfers its value to the value of production and labour adds value in terms of higher production. Thus, a possible increase in fixed capital would induce an expansion of output that in turn would mainly be attributed to the total contribution of labour, both towards recouping the wages and the additional production (and profits): $v + s$. If so, any increase in fixed capital stock that is associated with lower capital productivity (the ratio of $v + s$ to fixed capital), would imply a lower rate of profit. This is even when profits and labour productivity to wages ($s \,/\, v$) were to increase (Shaikh, 1992). The focus then shifts to what happens to capital productivity to study the behaviour of the rate of profit.

Nicholas Kaldor, as one of the discussants of Nordhaus (1974), reasoned if relative prices-led substitution of capital for labour is not significant (or absent), a general assumption could be a constancy of output capital ratio. Then, growth of output becomes the key variable that can explain the changes in the rate of profit (also see, Pasinetti, 1974). Still, the focus might not be on the capital labour substitution principle underlying neo classical principles that can explain investment-led decrease in capital productivity (and profit rate). Secular changes in capital productivity can come from changes in technological dynamism. Therefore, further studies on the rate of profit focus more on the capital productivity, as an independent factor, governing the behaviour of the rate of profit. That is, the rate of profit, $R \,/\, K$, taking R as profits, Y and Y_p as actual and potential income, and K as capital stock, would equal

$$(R \,/\, Y) \cdot \left(Y \,/\, Y_p\right) \cdot \left(Y_p \,/\, K\right) \tag{1}$$

namely, the rate of profit would be governed by what happens to the share of profits ($R \,/\, Y$), capacity utilization ($Y \,/\, Y_p$) and capital productivity ($Y_p \,/\, K$). Weisskopf (1979) notes the empirical significance of the share of profits is more tenable as compared to that of the role of a higher capital labour ratio-led possible changes in capital productivity. On the other hand, Michl (1988) and Devine (1988) assign a decline in capital productivity as the key role in making clear possible fall in the rate of profit. Similarly, if the declining phase of the rate of profit has been reversed (say, 1980s and 1900s in the US), Wolff (2001), Basu and Vasudevan (2013) give a key role to the revival of capital productivity.

To conclude, in general, the evidence of the behaviour of the rate of profit do not indicate conclusive indication of secular decline. There would be phases in which it declines, to be reversed in other phases. In recent studies, Wolff (2003) notes (taking the case of developed US) there has been a recovery of the rate of profit in the 1980s and 1990s, after a prolonged period of falling rate of profit. Basu and Vasudevan (2013), however, reveal how the revival of the rate of profit in the period 1980-2000 has again been reversed. Concentrating on long run

trends, Basu and Manolakos (2013) discern a weak but statistically significant secular decrease in the rate of profit in the US. Trofimov (2017), on the other hand, taking a broad economy-wide measure of profitability, finds there is no universal trends when one takes into account a broad spectrum of developed countries. A decline in some countries in the study period is associated with rising and recovery in many others. As Basu and Manolakos point up, the behaviour of the rate of profit with its ups and downs shows remarkable persistence. A possible decile persists for a long period, only to be reversed by another persistent recovery phase.

Similarly, there is also no conclusive evidence to make clear any possible overriding reason/factor that can account for the behaviour of the rate of profit. In other words, it is true, a falling rate of profit remains a concern, but it has no status of a generalized law.

At the same time, the present paper would reason the literature provides a too mechanical discussion of the importance of different factors. It neglects Marx's development economics perspective that indicates how a proper organizational form of production generates and sustains the secular increases in the rate of profit and how changes in the organizational form bring in a change in the behaviour of the rate of profit. These related issues are taken up below in the following two sections.

2. Profits, employment dynamics and organizational forms of production

The present section would concern Marx's development economics perspective. An organizational form of production that underpins employment dynamics is crucial for rising profits. Therefore, a change in the organizational form that negates this dynamism would be the key to the falling profits. In this, Marx's focus on profits is a "classical" one. They are based on surpluses that are to be generated only in production. Marx's premise is that market economies should be guided by the motive to obtain Adam Smithian surpluses in production that constitute real wealth.

In discussing the generation of the profits, Marx provides an in-depth analysis on the nature of organizational forms of production that can bring in the contributions of labour towards profits. Marx's presentation of the historical progress of the organizational forms could remain the best reading on the subject. However, still, to highlight some key features, the starting point would be the initial phase of industrialization in Britain, what Hobsbawm (1974) called the phase of cheap industrialization. Marx discusses the phase as one in which the generation of profits takes place with the technical conditions and the nature of tools or means of production remaining unchanged. This is when production is mainly defined by ordinary workplace labourers that is not associated with any technological dynamism. Therefore, a larger possible production and a surplus in it, the profits, has to be obtained either through larger working hours or lower wages per working hours. As Hobsbawm puts it, a particular application of Benthamite principle operates in which higher profits would have to be based on lowest possible wages and highest possible working hours. Wage labourers' inputs are viewed as the only source of surplus and there would be complete absence of profits making for the maximum reinvestment of profits that (otherwise) should rely on technological progress.

According to Marx (1887, p. 305), a complete transition from cheap industrialization to a full-fledged one typifies the coming up of "firms/factories". The focus point becomes a greater number of labour force working together, at the same time, in the same place, under a single

control. He (pp. 307-308) defined this as a revolution in technical conditions of production that allows certain types of larger scale-based economies. For instance, not only it is cheaper to produce a larger factory that employs twenty labourers than build ten for two labourers each. But also, the common use of the factory and the other means of production permits the spreading of the fixed costs that in turn reduces the (unit) costs.

Another source of technical dynamism, noted by Marx, is traced to the larger employment bases of the firms. One implication is what he identified (p. 309) as the "collective power of masses". He noted how certain tasks, raising heavy weight, turning a winch etc. cannot be performed by individual labourers, or performed in a dwarfed scale, but can be achieved with much less time and effort (individually speaking) with the combined co-operation of a larger employment bases.

However, his main focus in on how the larger employment bases, and the co-operation of labour, permits the introduction of division of labour. In the transition, Marx notes (see Marx, 1887, pp. 318-320), the division of labour can either take place via co-operations of different handicrafts that takes place when numerous pre-existing handicrafts are brought together to work for a single firm. Or, the production processes of any single commodity (existing handicraft) is sub-divided into many specialized sub-tasks, each task with specialized employment and machinery. The economies associated with such collection of activities under a single control would indicate a higher labour productivity in terms of a reduced time for completing the specialized tasks, better co-ordination of tasks, and a greater perfection in the use of the machinery.

Supposing, the consequence is higher labour productivity for a given working hours of a set of labourers, and the technical conditions define the wage bill. The higher employment dynamics of the organizational form of production permits higher profits. The focal point is the resultant higher labour productivity that translates into larger production, more than the production (and revenue) needed to recoup the costs of labourers and machinery. Any surplus production would define higher profits. It can be hypothesized this phase can correspond to the supposed dynamism of capitalism, associated with higher growth of good employment opportunities. The greater the labour processing manufacturing base, the greater would be the indicated dynamism. Each individual labourers' enhanced productivity adds to the profits.

The developed status of the instruments of labour, the means of production, is a standard of the developed status of labour productivity. However, Marx also stresses how though this is linked to employment dynamism associated with a larger employment bases and machinery is an appendage to labour processing production. Its role is limited to reinforce the dynamism of the larger employment bases in this organisational form of production.

The added emphases in Marx is how the larger employment bases, the employment dynamism, generates dynamic learning by doing that also supports the coming up of the formal science. For instance, Marx underlines how the higher labour productivity originating in collective power of masses generates interest in law of frictions that are but to be perfect by science. Similarly, there would be the instances of the division of labour-led 'learning' that helps both sharpening of the tools and introduction of new tools that can add to labour to add to the profits.

This development of dynamism has an important implication. Marx underpins the technological dynamism, the new investment opportunities aided by the growth of formal science brings about a change in the organizational form of production. The initial thrust comes from the greater division of labour employment dynamics and investments inducing the

coming up of specialized firms for the production of specialized machinery (Marx, 1887, pp. 313-314). He notes how this incidences of further division of labour, specialized firms for specialized tasks with specialized machinery, has to have a machinery base (pp. 323 and 329). It is the coming up of specialized machinery in narrow specializations that brings about a change in the organisational form of production. The new organization form of production dominated by increased incidences of "machines making machines" forms the phase of mechanization production base. This would be resulting in rising OCC, higher incidences of fixed costs that also coincides with a slowing down of employment opportunities.

In a related further elaboration, Marx (1887, p. 361) clarifies the division of labour, and the resultant higher labour productivity, is based on demand for the (scarce) labour that come with muscular development, keenness of sight, cunningness of the hand, etc. Specialized machineries, as instruments of labour, lend these abilities even to the ordinary labour. Hence the incentive to replace labourers by machineries. If the incorporation of machinery reinforces the profits relative to the wages, aiding the profits generating abilities of employment (given any level of employment), there would be an increasing tendency to introduce machinery on a larger scale. Associated with this development is the one that relates the market structure issue. An innovating firm, say, introducing machinery, would also get higher competitive advantage, displacing many others (laggards) in the same line of production.

This phase, according to Marx, marks a decisive transition. Manufacturing base provides the scope the introduction of the machineries. But, the advent of machinery and larger scale production, and the replacement of the labourers by machinery that it entails, also results in a slow but steady replacement of the existing manufacturing base by a machinery base (Marx, 1887, chapter IV, especially, pp. 361-362). He notes (p. 361),

> Here, then, we see in Manufacturing the immediate technical foundation of Modern Industry. Manufacturing produced the machinery, by means of which Modern Industry abolished the handicraft and manufacturing system in those sphere of production that it first seized upon.

The immediate implication is the increased focus on higher labour productivity that economizes on the employment of labour and increased replacement of the labour-based manufacturing processes. However, such shrinking of the manufacturing base implies further increases in *c*, and such technological dynamism, cannot induce further surplus generation (in production) in an enhanced way. To quote (Marx, 1887, pp. 383-384),

> Now, however much the use of machinery may increase the surplus labourers at the expense of the necessary labour by heightening the productiveness of labour, it is clear that it attains this result, only by diminishing the number of workmen employed [...]. It converts what was formerly variable capita, invested in labour-power, into machinery which, being constant capital, does not produce surplus-value. It is impossible, for instance, to squeeze as much surplus value out of 2 as out of 24 labourers [...]. Hence, the application of machinery to the production of surplus-value implies a contradiction which is immanent in it, since of the two factors of the surplus-value created by a given amount of capital, one the rate of surplus-value, cannot be increased, except by diminishing the other, the number of workmen.

There is a hint of decreasing returns. The lower employment growth and the lack of related further dynamism could be defining some optimum labour time, an index of labour productivity. Since surplus profits would depend on labour time times the mass of employment, this lowering of employment also permits the lowering of the profits. That is, the introductions of specialized machinery would permit higher labour productivity and possible higher production, but the production would only recoup the contributions of both the

specialized machinery and specialized labour force. The lowering of employment base however implies lowering of the base for the surplus production, and such profits. This phase, of increased dominance of machinery and the resultant negation of the employment dynamics mark the phase of rising OCC. It would indicate decreasing returns, but concerning the profits generated by the employment dynamics.

To conclude, in Marx, the source of real wealth of nations is not scale and growth of production per se, but the scale and growth of employment that come with higher wages. The wages proxy for the working conditions that are to be associated with employment dynamism. A policy focus emerges in which better employment conditions, favourable for employment growth, facilitate technological dynamism. Marx (1968b, p. 191) noted,

> You are aware of the Ten Hours' Bill, or rather Ten-and-a-Half Hours' Bill, Introduced since 1848. This was one of the greatest economic changes we have witnessed. It was a sudden and compulsory rise in wages, not in some local trades, but in the leading industrial branches by which England sways the market [...]. Dr. Ure, Professor Senior, and all other official economical mouthpieces of the middle class, proved [...] that it would sound the death-knell of English Industry. They proved that it not only amounted to a simple rise of wages, but to a rise of wages initiated by, and based upon, a diminution of the quantity of labour employed. They asserted that the twelfth hour you wanted to take from the capitalist was exactly the only hour from which he derived his profit. They threatened a decrease of accumulation, rise in prices, loss of markets, stinting of production, consequent reaction upon wages, ultimate ruin [...]. Well what was the result? A rise in the wages of factory operatives, despite the curtailing of the working day, a greater increase in factory hands employed, a continuous fall in the prices of products, a marvellous development in the productive powers of their labour, an unheard of progressive expansion of the markets for their commodities.

This observation does not amount to mere wage-push emphases (for the related literature, see Blecker, 2016).[1] The emphasis on how larger employment bases in a dynamic division of labour organizational forms adds to wages, but to add to profits. Much importance however is not attached the larger scale economies associated with larger employment bases of firm(s). The focus is on the resultant division of labour organizational form that permits the employment dynamics and the resultant larger production-based profits. Wages are seen as the compensation to the specialized employment in the division of labour that maintains the organisational form.

Adam Smithian focus was on how division of labour defines cooperation of different specializations: the organizational basis of market economies. Marx reiterates how larger employment bases in the division of labour adds to the productivity of labour. In this dynamic phase, there would be instances of the substitution of capital for labour, but the introduction of machinery, now, reinforces the employment dynamics. The role of machinery is seen but as the handmaiden of this growth.

Marx focus is also more dynamic. He goes further and provides insight into how the combined force of different aspects of labour, the different abilities, skill, and dexterity that labour brings in, supports the development of new ideas. In addition, the specialization with its specialized machinery also supports dynamic learning by doing. Labour in new specialized tasks faces technical and economic problems and the learning by doing to improve also generates new ideas. These new ideas form the basis of the formal science and its growth. This descriptive analysis could well be anticipating the more formal analysis of Schmookler (1966) on the growth of inventions and formal science (also see Padhi, 2019).

[1] The initial formulation of the wage-push, following Kalecki, is in the context of investment being a decreasing function of the existing capital stock and this factor dominates the investment function.

Marx, therefore, concentrates on the concept of relative surplus value. The division of labour and the growing employment bases would be associated with higher wages. But, the resultant employment dynamics can permit more than proportionate increases in labour productivity. This increase in the share of profits, the increase in s / v with higher v, results in a higher the rate of profit.

In this understanding, therefore, higher wages would underpin the contribution towards higher employment dynamics-led higher rate of profit. Higher wages should capture scarcity value of labour in narrow specializations that drives growth. They also can provide incentives to the underlying dynamic learning by doing that adds to the technological dynamism. The higher the size the employment base, the higher is the implied dynamism that can add to profits.

Similarly, Marx's not only speaks of the learning by doing in a static sense (Arrow, 1962a; Scherer and Ross, 1990) – the perfection of the use of tools that permits higher labour productivity. The focus is also on the how employment dynamics supports the generation of new ideas and dynamic learning by doing that supports the coming up of science. These dynamisms also translate into new investment opportunities that maintains (with possible increase in) the rate of profit.

However, in Marx's development economics, these new investment opportunities, and the associated technological dynamism also brings about the change in the organisational form of production. Hobsbawm (1974; also Young, 1928) traces the possible changes in the organizational form to an environment of an intense competition that induces a "greater search for markets" to increase profits. Marx broadly hints at assigning the key role to the greater force of technological dynamism and investments that some key changes in factory acts, along with the search for a greater rate of profit, bring forth.

The important role of investment not only for the realization of profits but also for a change in organisational form of production that comes with a change in the conceptualization of profits is discussed in the following two sections.

3. Realization of profits

The present section would advance an argument in which the changes in the organizational form of production, underlying Marxian falling rate of profit thesis, have to be traced to how profits are realized in economic development processes. Periodical realization of profits would have the impact on the future outcomes.

To start, it can be supposed, the discussion of profits should acknowledge the seminal contribution of Sraffa (1960) to the theory of capital. Prior determination of profits, or a definite wage bill (concerning a specific employment of labour) would assign the value of capital employed with reference to a specified final demand of commodities. Keynes in the *General Theory* could be acknowledging Sraffa (who was part of the inner circle in the writing of the *General Theory*) and provides a particular answer. New investment opportunities in a period, the expected future expansions, determine the utilization of the existing capital stock, output flow and profits. Since the capital stock with a given technology would stipulate a definite wage rate, the determination of investment-led profits (and output) give the value to the capital.

Marx's discussions provided a somewhat similar argument. His though is a concentrated focus on how the issue of the realization of profits is crucially linked to the proper conceptualization of profits. Therefore, he elaborated both on the critique of the "existing" conceptualization and realization of profits.

Marx starts with a basic criticism of Adam Smith's theory of value. The theory assumes an increasing tendency for the market prices to converge to some of normal price, corresponding to which various factors of production are to be valued at their respective cost basis (that would reflect their relative contribution to production). For any output flow, the costs of production would equal c, the costs indicating the contribution of constant capital and v, the wages to the labour force. If so, it is possible to define a "normal" value of output that just equals the market values of services of factors of production, $c + v$. However, then, according to Marx, this normal value cannot capture any surpluses in production (and profits).

Marx (his evaluations of the related works of Adam Smith and Ricardo in *Theories of Surplus Value*, 1963, 1968a, 1971; much of his writings in the Vol. II of *Capital*; for the summary, see Marx, [1956] 1986, pp. 329-354) elaborated on how both Adam Smith and Ricardo acknowledged the existence and importance of the surplus in production. However, they concentrated rather on a normalized value of products that would account only for all types of costs of productions. Therefore, they defined profits, not as the surplus in production, but the payment towards the fixed capital for its contribution. According to Marx, this payment should (otherwise) be part of the costs of production. Therefore, Smith and Ricardo failed to define profits that should be in excess of the costs of production.

This conception of profits in Marx has an important implication. The market price of products (their exchangeable value) allows for the profits (s) in excess of the costs of production ($c + v$) and equals ($c + v + s$). Then, the demand generated by the money payments towards the factors of production, $c + v$, cannot realize the profits (in exchange). That is, each commodity's "normal value" ($c + v$) would lag behind its commodity-value ($c + v + s$) that is inclusive of the surplus value. In other words, in an aggregate sense, from the point of view of an industrialist,

> […] the supply of commodity-value is always greater than his demand for it. If his supply and demand in this respect covered each other it would mean that his capital had not produced any surplus-value […] (Marx, [1956] 1986, p. 120).

The demand generated by such "normal value" of each commodity cannot provide the market for each other to realise the surplus of each producer (Marx, [1956] 1986, pp. 95, 202-203; chapter XVII). Marx (1971, pp. 40-51), therefore, concurs with Malthus who argues some additional purchases, more than payment towards factors of production, are called for to realize the full employment output that would realize the profits (the surpluses in production).

Given this understanding, as a solution to the problem, Marx holds the realization of the profits requires some additional money (advances) more than the money required for the payments towards the factors of production. Marx ([1956] 1986, Chapter, XVII, pp. 338 and 349) notes: supposing the output flow and profits were to be maintained period after period, the case of simple reproduction, the additional money advanced would take the form of additional consumption of the industrialists. This additional consumption in turn would provide the demand outlet to realize the profits. On the other hand, in the contest of a growing economy, the extended reproduction, the additional demand for the realization of profits would come from the additional advanced would take the form of investment, the additional purchases of means of production, c. This investment, and the realization of profits, permits

the increased production (and further profits). If so, the surplus realization entails that the industrialists not only benefit in terms of additional consumption and investment goods, but also that the additional advance, to realize the profits, comes back to them in the money form.

In this logic, the money advances to start production, $c + v$, would always target the realization of some expected profits. There is no other value attached to the production and the status of the money advances towards production. If money advances, $c + v$, are already being made in a period to define production, the non-realization of the expected profits would make the money advances sunk and denote a crisis. The determination of the rate of profit gives an equilibrium value to the money advanced towards capital ($c + v$). Therefore, both the money advanced towards production ($c + v$) and the additional advanced towards realization of profits, together, determine the value of products, $c + v + s$.

Some essential difference between Sraffa and Keynesian interpretation of Sraffa needs a mention (see Bellofiore, 2014; for the related literature, see Screpanti and Zamagni, 2006). Sraffa would hold once wages are known, given technical coefficient and final demand, the rate of profit and relative prices can be determined, and profits would be considered a residue. On the other hand, both Keynes and Marx would consider the production comes with a particular technology that also stipulates the wages in a historical setting. Therefore, it is the determination of profits that assigns the value of the capital that comes with a definite output flow (production). Suppose, investment determines the output (and profits), changes in these would induce changes in technology and wages.

It is possible, especially in Marx, that employment dynamism can permit both higher wages to employment embedded in higher degrees of the division of labour and (therefore) higher potential profits. The higher wages linked to a greater division of labour dynamism also stipulate higher investment opportunities (and money advances). In this way, the higher wages (in a new production period with new technological dynamism) supports the realization of higher profits.

In the literature (see Sweezy, 1942; Steedman, 1977), the production that stipulates a surplus generated in production is interpreted in a way in which the value of products, $c + v + s$, is discussed in a self-contained way. That is, a particular prior value of the value of money advances (both variable, v, and other means of production, c) determines a particular surplus. Marx's discussion of the crucial role that additional advances play for the realization of surplus, however, shows this pre (anti?)-Sraffian interpretation is not correct. A proper interpretation is: the value of commodities ($c + v + s$), embedded in the production is dependent on the functional form in which $s = f$ (additional money advances). If the advances equal investment (I), we have then the investment profits equality for a technologically given wages.

It also follows even if there is the role of money that permits the realization of surplus in exchanges, the emphasis is not on the role of money as a medium of exchange. The important role of money would underpin its role in the additional advances for the realization of the profits (and makes possible the production as an equilibrium outcome). This role stipulates how money plays a decisive role as a factor of production (for contrasting views, see Foley, 1987; Bellofiore, 2018).

Furthermore, in Marx, the exchanges take place specifically for the realization of the profits. The underlying surpluses in production are attributed to extra labour time (given the efficiency of other inputs). Assuming in the exchange, the values of products would recoup the costs relating to c and v, profits would always exceed this normalized costs value of the product. The excess profits translate into excess labour time in relation to wages. Therefore,

Marx groups the advances towards production into two distinct parts: fixed capital c, to include all factors other than labour, and v, the labour as the variable factor that accounts for the surplus.

Marx's preferred the labour theory of value mainly because the profits on the basis of which the exchanges take place have to refer to the excess contribution of labour. Putting differently, given a capital stock used in the production with a specified technology that adds to labour productivity, the labour time and wages are independent variables. That is, production and labour time can be extended at the given (optimum) labour productivity and with given wages. The extension results in the profits. Specifically, higher constant capital, c, can result in higher labour productivity, but the profits would increase only when the increases in wages (v) would lag behind the magnified increases in the labour productivity. The higher fixed costs (accounting for their contribution) only transfer its value to the final value of the product.

Given any stage of production and the productivity of labour, corresponding to $c + v + s$, there is the total money supply, m that equals m_1, the money advances towards $c + v$ and m_2, the money advances towards the realization of the profits. The supply of money in circulation maintains the total value of products in some aggregate sense. Then, the value added, $(v + s)$, attributed to average productivity of labour, has a definite money value. If so, corresponding to the money supply, it is possible to stipulate the price of $(v + s)$ that would equal the employment and its average productivity. This price, as per the labour theory of value, also conforms Sraffa (1960) (see Screpanti and Zamagni, 2006, p. 452). All this, however, with proviso that for Marx, the focus remains on all commodities concerned that are produced for a surplus in production and carry positive exchange prices.

4. Investment, changes in organizational form: different conceptions of profits

Supposing the extra money advances are forthcoming to realize a surplus in production refer to new investments. Marx goes further and sheds light on the investments can reinforce the employment dynamics that in turn supports generation of higher profits in production. More important, the employment dynamism also supports the learning by doing-led new investment opportunities in a continuous way. This certainty of the investments brings forth the extra money advances that realizes the profits and gives specific value to values of $c + v + s$ that conforms to proper growth. If so, Marx's conception of how stability of investment confers the stability to the rate of profit is closer to the spirit of Keynes and Sraffa.

Supposing the employment based dynamism and investments give way to the change in the organization form of production towards mechanization, can the increased incidences of fixed capital lends the same stability to the rate of profit? Marx never elaborated the evolutions of the rate of profit in the mechanization phase per se. For him, what is important is that the evolution of organizational form of production negates the proper bases of profits and wealth.

Still, mechanization coinciding with the growth of formal science and Marx holds how science-based greater technological dynamism can also translate into further investment opportunities. If so, allowing for the investment savings identity, the possible increases in profits have to keep pace with the investments. The sources of such profits facing mechanization however needs elaboration.

The present paper would make some simplifying assumptions. In Marx, products meant for exchange have the value equal to costs of production plus the profits ($c + v + s$). However, while discussing the rate of profit, most of the empirical studies can equate profits to value added minus wages; holding, in principle, that value added only would calculate the returns to fixed capital used up and the wages. The present paper, following Kalecki (1954), would also assume firms, in either organizational forms, are vertically integrated. Then, the profits can have two parts: a profits that should be attributed to the contribution of fixed capital stock (that according to Marx would be part of the normalized cost value of c that would now capture only the fixed costs) and a surplus profit that should be attributed to excess labour time, given the wage rate. In other words, corresponding to ($c + v + s$), we have ($p_1 + w + p_2$) where p_1 would refer to Adam Smithian normal profits on c, w is the wage bill and p_2 would be the surplus production-based profits. In Marx, once p_2 is realized, it gives the value to p_1.

Marx's thesis would concern the evolution of p_2 in development processes. This component of profits has to be attributed to excess contribution of labour, given productivity of capital and the corresponding p_1. The higher possible p_2 would be guided by technological progress or labour productivity in terms of enhanced labour time of an "average labour" and total employment of labour. A focus then can be on (i) productivity of capital, (ii) labour time and (iii) wages to study how the interactions define the evolution of profits.

The technological dynamism that guides higher p_2 can also have a bearing on the evolution of market structures. It is not possible then to assume that p_1 would equal just the normalized costs ($c + v$), say corresponding to an assumed competitive market structure. To elaborate, a competitive market structure could be specific to negligible incidence of fixed capital. The surplus-based profits would then also be low. The output flow could indicate some existence of "perfect competition" (or normal prices) that comes with free mobility of factors. The price of the product would equal average costs. The normal profits (p_1), part of the costs, is at the minimum. Marx would reason given the price of the product (and normal profits), a firm's output does not have to equal the optimum one that covers only the costs. The firms would have had expanded output beyond it to allow for excess production that in turn permits positive p_2. In a way, Marx, as theoretical exercises, could be referring to some conception of possible existence of Adam Smithian perfect competition, but to emphasize the distinction between Adam Smithian one that permits the production to obtain only normal prices (and profits) and the one that also permits a surplus.

However, there is no presumption Marx visualizes increases in the profits specific to this conception of perfect competition. His development economics perspective (section 1 above) is perfectly consistent with the view a representative perfectly competitive firm with small or negligible fixed costs can produce that much excess output and beyond it decreasing returns can set in. Supposing the incidence of the fixed capital is entirely absent, there is a limit to generation of absolute surplus value. Perhaps, therefore, Marx suggests the desire for higher excesses has to be linked up with the increased focus on higher fixed costs, the introduction of machinery, that can permit technological progress-led augmentation of the excess production. If so, increases in p_2 embedded in higher fixed costs-based technological dynamism also brings in changes in market structure.

Perhaps, Marx holds the evolution of market structure and prices and how they influence Adam Smithian profits have no bearing on in the evolution of technological progress-led p_2. Such influences on p_1 are independent variables and have no bearing on the study of p_2 (for a related argument, see Schefold, 2016). What happens to the Adam Smithian profits, possible

departures from normal profits, would have no bearing on the analysis of the study of the excess profits. Strictly speaking, higher fixed costs and the contribution of machinery to labour productivity would demand a higher c. Insofar as it is also associated with higher employment, v, $c + v$ would increase. The higher c can demand a higher p_1. The justification of this higher p_1 and wage bill comes from enhanced labour dynamics and still higher surplus production and profits, p_2. In general, however, the changes could permit prices and margins, and therefore, p_1 to vary. For instance, a way out could be a constant price and mark-up pricing specific to imperfect competition (perhaps oligopoly) where equilibrium output is purely demand constrained (see Bhaduri, 1987). The focus is consistent with Marx's views on how the certainty of new investment opportunities is key to increasing profits.

However, what happens to p_1 has an independent interest when the new investments could be bringing in or are embedded in the changes in organizational form of production. Coming back to the distinction between Adam Smithian and Marxian profits, suppose, the surplus in production, for the sake of argument, disappears over time. Then, the behaviour of the rate of profit would be guided by the Adam Smithian profits. However, if the disappearance of surplus comes about through increases in capital labour substitution and higher incidences of fixed capital, the Adam Smithian profits may not be the normal one!

According to Marx, unlike the manufacturing phase, the advent of the mechanization phase would witness sharp increases in the incidence of fixed costs. The relative importance of the fixed costs would be ascribed not only to the machinery base of the production process, but also to the various inter-linkages that the machinery base demands (Marx, 1887, chapter XV, section 2). The recent literature would also acknowledge though the higher incidence of fixed costs brings in the economies of higher scale, the economies do not translate into a lower competitive price (and normal profits). The higher fixed costs based monopolization, or tendency towards oligopolistic market structure, has to be supported by higher market power (see Murphy et al., 1989; for its relevance in higher fixed costs-based endogenous growth theories, see Romer, 1990). The market power-led profits are also to be viewed as the compensation to higher fixed costs involved.

This discussion of different conception of profits corresponding to different organizational forms is taken up below in the following sub-section.

4.1. Different Conception of Profits: How Empirics Stand

Marx's economic development perspective distinguishes between a rate of profit that is derived from the surpluses of production and another that could hint at higher market power to higher scale economies in the mechanization phase. The present paper would argue the distinction is based on the distinct factors/forces that drive the different types of rates of profit.

Marx's profits generated in production underpins the role of employment dynamics that entails higher average productivity of labour in the division of labour organizational form. In Marx (1887, p. 309), the dynamics would involve the introduction of machinery that enhances the average productivity of labour, individual speaking. Therefore, the introduction would entail some substitution of machinery for labour. However, employment dynamics is indicated when the substitution is associated with increases in employment in higher specialized employment opportunities and results in a much higher labour productivity. In this focus, the higher labour productivity accompanied by increases in employment translates into a

magnified expansion of production permits the surplus production and profits. Therefore, the justification for the introduction of machinery, the capital labour substitution is the possible increases in capital productivity. Putting differently, the increase in capital productivity would imply the increase in labour productivity more than proportionate increases in the employment and wages embedded in the indicated state of dynamism, and permits a higher share of profits in production. To elaborate on these issues, the focus can be on the equation 1 (section 1), which can be rewritten as,

$R/K = R/Y \cdot \ Y/K$

that is, the evolution of rate of profit can be traced to the evolution of the share of profits and the capital productivity, allowing for full capacity utilization.

The changes in the share of profits (s/v in Marx's notation) would be paced by the relative pace of growth of labour productivity and wages. One possibility could be an increase in the share brought about entirely by lower wages (or, higher profit margin on wages), given some level of labour productivity. Marx would, however, identify such phases with what section 2 identifies with cheap industrialization that does not rely on technological dynamism, In Marx, in dynamic phases of rising profits, the rising labour productivity would also be associated with increases in employment and wages. The increases in employment indicate employment dynamism when they are embedded in the division of labour-based narrow specializations. The resultant magnified increases in labour productivity more than proportionate to the increases in wages permits the increases in the share of profits. In functional form, taking E as employment and w as wages, we have

$$R/Y = f[wg(E)] \tag{2}$$

all functions are increasing in its respective arguments.

The possible growth of employment that can indicate the employment dynamics needs elaborations. The division of labour employment dynamics stipulates introductions of specialized machinery for specialized tasks that also permit some capital labour substitution. The focal point is how the capital labour substitutions, increases in capital labour ratio would be associated with increases in capital productivity. In other words, the dynamic phase translates into Kaldor's technical progress function in its transition phase. The increases capital productivity would entail increases in labour productivity that are more than proportionate to that of the increases in capital intensity. In this case, the growth of output (attributed to capital productivity) would exceed the growth of labour productivity (attributed solely to increases in capital intensity), and results in an increase in the demand for labour (and employment). The employment therefore refers to new specialized employment opportunities that capital productivity brings in. We can then have,

$wg(E) = f(O/K)$,

all functions are increasing in its respective arguments. One closes the model when

$O/K = h[E(I)]$

Investment (i) adds to employment dynamics to add to capital productivity; this could support the association between employment and labour productivity (share of profits) growth. A cumulative causation growth would also be indicated when the specialized employment and employment dynamics supports learning by doing dynamics that also

translates into a higher pace of new investment opportunities, and further increases in capital productivity and so on.

Is there any empirical support for this dynamism? In related empirical studies (see McCombie and Spreafico, 2016), Kaldor's technical dynamism function has been translated into a demand-led cumulative causation. The growth of demand (and output) induce the growth of labour productivity. In the empirical specification, to avoid spurious correlation when output growth is incorporated in both sides of the equation, the preference is for the specification in which taking the subscript g denoting growth, we have

$$E_g = e(Y_g)$$

There is a larger empirical support for this law (McCausland and Theodossiou, 2012; McCombie and Spreafico, 2016). The positive association between output growth and employment growth comes an employment growth that lags behind and indicates its association with higher labour productivity. In addition, there is also the support for the evidence of how a shift of employment from low productive industries/sector to some higher ones is associated with the indicated higher labour productivity growth.

A focus can be on the possible alternative causation that runs from productivity shocks, total factor productivity (TFP) growth, to employment outcome (Landmann, 2002; Ark et al., 2004). Such studies do not rule out an overall trade-off between the two. However, taking the developed regions, the studies indicate how the US experience discredits the trade-offs. Comparing the experiences of the US and Europe, the former in the pre-1990 decade showing a lower productivity growth with higher employment outcomes. However, this was followed by a reversal in the US productivity growth in the 1990s and the acceleration of productivity growth comes without any sacrifice of employment growth. However, this perspective cannot assign a key causal importance to the role of employment dynamic, whether the pre-1990s higher employment growth resulted in the subsequent higher (labour) productivity growth.

It can be argued Kaldor's growth laws also remain silent on the causal importance of employment dynamics as such. This, however, could be due to the laws assuming a constant capital productivity and investment ratio in the growth. If so, the dynamic forces behind the growth of employment remains unexplained. For example, employment growth would be indicated when output growth exceeds labour productivity growth. This means, as discussed earlier, the output growth must be driven by investment that also permits higher capital productivity (i.e., output growth must be accounting for some index of total factor productivity (TFP)). Libanio and Moro (2009) show in fact output growth also has had a positive impact on such TFP (also see McCausland and Theodossiou, 2012).

Second, Kaldor (1957; also see Pasinetti, 1974) could be assuming the constancy of capital output ratio (and profits and investment share) to argue how it is the growth of output that becomes the important determinant of the rate of profit. Still, if the focus is on cumulative causation (in a closed economy framework), the continuous growth of demand can raise issues. Employment growth might not be a passive outcome. If output growth permits employment growth (and labour productivity growth), the more specialized employment opportunities could be adding to technological dynamism to add to higher investment-led output growth (Padhi, 2015). McCausland and Theodossiou (2012) also underpin how productive employment opportunities (higher growth of employment in manufacturing) adds to productivity growth.

Beyond steady state growth logic, Basu and Budhiraja (2020) reasons a very low employment elasticity, as the case in the US, may not indicate the presence of increasing returns if it were to be associated with a reasonable profits share and an elasticity of substitution that is less than one.

Much however depends on the presence of the employment dynamics in the phases of increases in the rate of profit. Wolff (2001) commenting on the reversal of profit rates (in US) notes the rising rate of profit correlates both with rising share of profits and capital productivity. In further elaborating (Wolff, 2003), the rising profits are also associated with structural change dynamics towards higher employment (in labour intensity industries) that would also signify reversal of rising capital intensity in the US.

Basu and Vasudevan (2013) also assign the key role to capital productivity in the phases of rising profits. Felipe and Kumar (2010) using Indian data show how a phase of sharp rising rate of profit is associated with increases in capital productivity that comes with a constant capital intensity (and wages). However, their use of a static Sraffian production system in which increases in capital productivity would but indicate the adoption of capital savings technology can raise issues. It would be a challenging task, for instance, to distinguish between whether a greater output flow comes with a reduced capital inputs or indicates the introduction of new machinery (replacing earlier ones) that permits higher output flows.

In general, however, the interactions between the employment dynamics and capital productivity remain an under-researched topic in this literature that (otherwise) deals with the importance of capital productivity. For instance, increases in the capital output ratio can sometimes be attributed to a revival of better capacity utilization. Similarly, as Michl (1988) cautions, a higher relative price of product in relation to capital goods (and raw materials) can raise the value of capital productivity in price terms that in turn determines the rate of profit. These instances of rising capital productivity may not directly relate to the role employment dynamics as such.

At the same time, a possible negation of employment dynamics, coinciding with a change in the organizational form of production, however, does not imply a lowering of the rate of profit per se. The empirical bases of the rate of profit can however be different. The phase of the mechanization associated with higher relative incidences of fixed capital (and rising OCC) can rely on a higher market power-led higher profits. These profits in excess of some measure of normal profits (see, Martin, 1989, chapter 2) is seen as the needed compensation to the fixed capital to maintain it (Murphy et al., 1989; Romer, 1990).

To elaborate, higher incidences of fixed costs that targets larger scale economies can indicate a greater share of the corporate sector and define a market structure with higher sellers' concentration. Following Bain (1968)'s market structure-conduct-performance tradition (and in a closed economy framework), the higher fixed capital-led technological dynamism can translate into higher scale economies that in turn permits higher market shares to more efficient firms. The rate of profit (or profitability) can therefore be linked to such rising market shares that in turn would hint at a tendency towards higher market concentration. In other words, the rate of profit would be paced by some complex interactions of market structure, conduct and profitability (with its feedback effects on conduct and market structure). In empirical studies, taking profits to be in excess of normal profits,

$$Profitability = F(C, B, D),$$

where C stands for industry concentration (that can promote collusion), B stands for barriers to entry and D stands for demand conditions. There has been the empirical support for the collusion hypothesis (that comes with significant barriers to entry). That is, higher market shares of few largest firms relate to higher profitability and supports the collusion hypothesis – higher concertation permits collusion that in turn permit higher profitability (for the related empirical studies and consensus that support the collusion hypothesis, see Martin, 1989; Scherer and Ross, 1990, chapter 11; Waldman and Jensen, 2005, chapter 16).

These findings, however, predominantly remain cross-section analyses. However, the empirical framework can be used for time series analysis and such findings also indicate a support for how an increase in concentration over time result in collusion-led higher profitability (Scherer and Ross, 1990, pp. 442-443).

This empirical tradition also endeavours to incorporate the possibility a higher profitability could be due to higher efficiency. Firms those who introduce methods that are more efficient gain in market share (and profitability). The related empirical specification and analyses support both the collusion and efficiency hypothesis (Martin, 1989; Scherer and Ross, 1990). However, as Martin (1989, p. 181) cautioned, it could be that higher efficiency that results in higher concentration and in turn induces the collusive practices. For instance, all depends on: whether efficiency permits lower price (and higher production)-based higher margin, or translates into higher price-based higher margins.

The issue of efficiency, however, also raises the issue of whether highly concentrated market structure, an absence of an intense competitive environment, could induce either managerial slack or provide less incentives for further technological dynamism. In addition, higher scale-based efficiency gains demand a full employment outcome. For example, the gains from a transition from cottage industries to scale-based industrialization would demand the simultaneous adoption of it in all industries; only then the profits of each are spent and provide the markets for each other.

Firms with higher fixed costs remain sensitive to a desired market share (and profits). Therefore, if the full employment outcome is not achieved, one can witness an intense competition for gaining "markets" from each other that in turn can translate into higher unproductive spending, say excessive advertising (Maddala and Miller, 2004, pp. 330-331). It can also induce higher rent seeking activities. Managers instead of doing their routine jobs of searching for better technology, supply chains and supervision could be diverting their energy lobbying and other such activities. These also translate into additional, unproductive resources towards lawyers, lobbyists, representatives, etc. The aim could be obtaining special favours, favourable licenses, etc. that are unrelated to efficiency. Marx ([1956] 1986, p. 58) also hints how in periodic slowdowns in the profits generated in production, there is always the scope for corrupt practices; he noted: "All nations with a capitalist mode of production are therefore seized periodically by a feverish attempt to make money without the intervention of the process of production".

This X-inefficiency (or productive inefficiencies) could be associated with higher unit costs of production; if so, the maintenance of R/Y could be more dependent on still higher price-based margins. The estimates of these "costs of monopoly" ranges between 7 to 50 per cent of GDP (see Maddala and Miller, 2004, pp. 345-346).

5. Concluding Notes

5.1. Conclusion I. Evaluation of existing studies: the neglect of employment dynamics

Marx's discussion of the rate of profit underpins the importance of (i) employment dynamics that defines rising capital productivity (and rising rate of profit) and (ii) role of new investment opportunities that sustains the rate of profit. In addition, the share of profits and capital productivity should not be discussed in a mechanical way, each exerting an independent influence. Marx's reasoning would indicate a sequential mechanism: investment-led capital productivity supports employment dynamism to support higher share of profits. That is, the rising share of profits can be achieved even when the employment and wages are rising.

More important perhaps, technological dynamism and changes in it (in whatever form) do not just happen. Investment, embedded in past learning by doing, is responsible for them. In addition, if investment were to bring in a change in organizational form and negates the employment dynamics (and Marx's profits generated in production), profits (still) have to keep in pace with the investments. The behaviour of the rate of profit, whatever may be the underlying technological dynamism, demands the investment profits equality.

The existing literature (revised in section 1) neglects many of these development economics perspectives. Okishio (1961) provides an important criticism of Marx's thesis on inevitability of falling rate of profit on the basis of some alternative form of technical change and rising OCC that can be associated with rising rate of profit. At the same time, though Okishio relies on a Sraffian production scheme, the introduction of technological dynamism with a given output flow can raise issues. Sraffian system can also permit changes in technical coefficients, but perhaps concerning if the output (and investment) flow would be different. For instance, if the cost reduction technique is to be associated with higher output flows, would it indicate greater employment dynamics, or not. Otherwise, what emerges is a comparison of a static picture of perfect competition long run equilibrium to another and both come with zero profits (see Morimoto, 2013; Okishio, 2001). Perfect competition, also, does not permit any surplus production (by definition). Production would just be reflecting the payments to factors for their contributions towards the output. In this sense, there is no discussion of the impact of the Okishio types of technical change on the surplus production (and such criticism of Marx).

When Marx speaks of dynamic phases of rising rate of profit associated with employment dynamism (section II above), the allusion is not to perfect competition. The firms concerned with larger employment bases take advantages of economies associated with both larger scale of factories and a greater division of labour. Further, the focus is on the investments, the additional constant capital or wages, that brings about any form of technical change. That is, the possible reduction of costs of investment goods in Okishio should be an outcome generated by higher investment goods.

The incentive issue in Okishio can also raise issue. For instance, in Arrow (1962b), allowing for perfect competition, the incentive to inventor is discussed in terms of the innovator choosing any particular firm and introducing the new cost reducing technique to get monopoly profits (and rents to the inventor). It is possible that in the long run, diffusing process would permit another perfect competition (though with higher output flow). However, a more plausible outcome can be the possible reinvestment of the profits, say advertising or other forms of strategic conduct, to maintain the monopoly profits in the long run. There is also

the case of first mover advantages to the innovator that can define some form of oligopolistic market structure as a long-run outcome (see Scherer and Ross, 1990, pp. 627-628).

Similarly, in general, the literature dealing with the behaviour of the rate of profit (section 1 above) neglects the issue of different empirical bases of the rate of profit over time. Is it the employment dynamics and greater capital productivity-led profits at play, or the emphasis is on greater fixed costs-based expansion of scale that comes with higher market power? Here, also, the role of capital productivity is highlighted as an independent factor, independent of the nature of changes in the share of profits. However, as discussed in section 4 above, a focus can be on rising capital productivity that coincides with employment dynamism, and therefore adds to the share of profits.

Further, the literature that closely follows Marx also neglects the important insights that Marx's development economics provides. The related studies fail to appreciate the understanding of how the conceptualizations of technological dynamism, capital labour substitution, profits undergo studied changes in different organizational forms of production.

First, in a broader interpretation, the argument of Sweezy and Robinson (section I above) the capital labour substitution in the face of technological dynamism should not face decreasing returns could be correct. However, Marx's development economic perspective underpins two different types of technological dynamism that can come with two different types of rate of profit. Marx's thesis would underpin how the focus should not be on decreasing returns to capital labour substitution per se, but on whether the growing substitution possibility negates employment dynamics or not. If this employment dynamism is missing, the rate of profit derived from larger production and surpluses in it would decline. Still, technological dynamism in some other form that comes with higher incidences of fixed costs (and rising OCC) can permit higher market power-led returns. Such rising "returns" does not, per se, constitute a challenge to Marx's thesis.

The issue is: supposing machinery replaces labour, and results in vast unemployed surplus labourer. If employment of labour is the source of surpluses and profits, why not machinery that can provide larger employment (and profits)? The present paper argues a proper interpretation of Marx is the nature of the organizational form of production matters. A growing labour-processing manufacturing base, and the attendant growing dynamism of the division of labour organizational form can provide the scope of growing employment. However, if the base is shrinking, this source of dynamism to increase the rate of profit also loses its stream.

Marx's concern is not on the possible dynamism concerning production of capital goods, but on the dynamism of capital goods that can add to employment to add to the surpluses in production (and such profits). The possible greater dynamism in production and larger scale of employment of "capital" has no value in Marx's economic development perspective unless the employment creates the surpluses in production. Without generating the surpluses, the value would then carry only higher sunk value; though the lower price of capital can add to competitive forces that can reinforce other forms of profits (see section 3 above).

Marx's thesis does not deny some possibility (some phases) of dynamism of capital goods sector in reinforcing the generation of the surpluses, and, therefore, Sweezy-Robinson possibility of increases in rate of profit. However, the dynamism of capital goods sector, and possibility decreases in value of c (and v) is achieved only when the sector targets larger employment base that adds to the volume of output to add to the surpluses. This would but be true when the scope of labour-processing manufacturing, and the existence of such bases, is

large. What Marx's thesis predicts, if the dynamism also reduces the manufacturing-based scope employment dynamism, the force of this dynamism would slow down over time.

Similarly, Heinrich's observation of rising organic composition of capital (OCC) that can come about with a given (or lower) value of constant capital, c, and the possible increases in share of profits, is not part of Marx's elaboration of the development of forces of production. It is the increases in c, associated with less of employment dynamism, that would be responsible for the long run increase in the OCC. In addition, if c is given, the maximum production and the surplus production (profits) should already being planned for. Using modern concepts, if c is given, and so also the technology, the technical efficiency parameter would indicate a given v; proper working out of the technology cannot take place with a reduced labour force. Therefore, a transition towards achieving further increases in labour productivity to wages (s/v) can be achieved with rising OCC, but not via employment dynamics and such profits in Marx's discussions of profits, but through market structure specific higher returns to fixed costs. The discussion of an increase in surplus production based s/v, via reduced employment dynamics (reduced v with a given c) would be stretching the logic of algebra too far.

Patnaik (1972; 2014) could be right, in line with the observations of Hardy (2016) and Morimoto (2013), in identifying the phase dominated by oligopolistic market structure coincides with (or relies on) shirking employment generation. However, his focus is not on how to maintain Marxian rate of profit, but on the sustainability of some form of profits pertaining to a possible oligopolistic market structure. It is true, rising rate of profit that rely on market structure specific mark-ups have to rely on a higher pace of investment.

However, it does not necessarily follow that the pace of investment would slow down in the so-called mechanization phase. The economies can still exhibit greater technological dynamism that can also come with the growth of industries-led higher pace of investments and can also support other forms of profits. Marx (1887, Chapter IV) predicts once the formal science comes up and has its autonomous growth, new industries would come up in a continuous way. This phase could coincide with machine producing machine phase. Science-based new industries would come up, but (Marx, 1887, p. 362, gave examples of modern hydraulic press, the modern power-loom, and the modern carding engine) they would have had no earlier manufacturing base. Marx here (1887, pp. 362-363) gave the hint how the developments create external economies:

A radical change in the mode of production in one sphere of industry involves a similar change in other spheres [...]. Thus spinning by machinery made weaving by machinery a necessity, and both together made mechanical and chemical revolution that took place in bleaching, printing, and dyeing, imperative.

The point is: the science-based technological dynamisms, the coming up of new investment opportunities can sustain a higher pace of investment. Therefore, any modelling exercise that predicts the falling rate of profit, in this phase, should incorporate some constraints on such visualization of new investment opportunities.

5.2. Conclusion II. Broader policy focuses

The present paper's main contribution would be: how the existing literature neglects the importance of employment dynamism in the behaviour of the rate of profit. Employment in division of labour organizational form of production adds to capital productivity to add to

rising R/Y (and the rate of profit). This can be consistent with the growth of good employment opportunities. This focus, also, provides important insight into the important role of employment dynamism embedded in learning by doing-led dynamism that can sustain both higher generation of the surpluses in production and a higher pace of investments for the realization of the surpluses as profits. Thereby, if the rate of profit behaviour can raise concern, the present paper concerns how Marx's thesis shed light on the proper economic development processes that should sustain the rate of profit.

However, the present paper also highlights how the negation of employment dynamics does not imply a fall in profits per se. The focus can be on another organizational form of technological dynamism that in turn can stress increasing returns to higher scale economies that also can sustain a higher rate of profit in other forms. If so, present-day incidences of rising rate of profit cannot per se pose challenges to development economic underlying Marx's thesis on the falling rate of profit.

What is more important, perhaps, is the distinction between division of labour-led increasing returns and increasing returns to larger scale economies. The greater 'search for markets' is an important base to increase profits, but this can have different meanings in different development perspectives. Following Young (1928) (and Kaldor, 1972), the supply dynamics underlying the former stress how investment in the division of labour creates external economies that translates into macro expansions – increasing returns in production possibilities in which the expansion in one line of production that is more productive is accompanied by such expansions elsewhere. This forms the basis of dynamic learning by doing that in turn induces further investment opportunities in a cumulative way (see Padhi, 2019). The expansions of markets embedded in the macro expansions permit many to participate in new, innovative activities to increase profits.

These growth impulses could be missing in a development processes that stresses increasing to returns higher scale (Chandra and Sandilands, 2005; Padhi, 2019). There would be instances of science-based new investment opportunities. However, it is open question whether these new investment opportunities permit external economies-led macro expansions. The issue remains: how many would be participating in the knowledge gathering and specializations processes? The intense oligopolistic rivalry, to obtain advantages in market shares as market is growing, may limit the participation of many. The science-based R&D centric innovations (with or without any tight patents) may not permits the participation by many; these innovations come with scale factor and cater to firms with some form of competitive advantages (Bardhan, 1995). This could be because, the firms rely on expensive fixed costs and are very sensitive towards the "market shares-market power"-based returns.

Marx's development economics could be bringing the distinction between different forms of increasing returns in sharp contrast. In one the possibility of macro expansions that permits many to target larger profits via larger production and in the other, the higher profits to some can be at the expense of others. Marx's focus could be more on how the employment dynamics can permit possible increases in employment and wages that add to labour productivity to add to profits. This outcome can be compared with the increasing returns to higher scale in which given any labour productivity growth, higher wages translate either into higher prices (ad margins) or into lower profits.

Still, Marx's discussion of a pure market economy in a closed economy framework and his sharp distinction of proper and improper development processes in "either-or" form has to

qualified. Any empirical note has to bring in how actual market economies work and take into account intricate interrelationship of markets, governments, and international trade.

First, there is the issue relating to stable long run outcome in a predominantly science-based growth of investment that has seen the increased tendency towards monopolistic and oligopolistic market structures. Such market structures can result in periodical Keynesian types of unemployment situations (for a literature review, see Solow, 1998). Real business cycle theories could argue in response to the unemployment situation, rational agents can make adjustments to productivity shocks that can, in the long run, restore full employment outcomes (for a critical neo classical note, see Solow, 2003). The point however is: whether price mechanism, allowing for oligopolistic market structures, works, or not. Solow (2003) in making the distinction between short run and long run, would argue for the aggregate demand support system that ensures long run growth that in turn can make the market structure-based price mechanism effective.

Sraffa's contribution can be relevant in making clear the contours of the possible short run adjustments: evolution of demand components has to come with evolution of wages in line with changes in technical coefficients of production and can make stable outcome possible. In a way, a Keynesian economic focus is on short run demand management support to achieve full employment profits realization outcome (and a resumption of long run growth). However, any change in demand conditions does not come with sameness in supply conditions, the same technical coefficients and wages. A post Keynesian focus is also on how the changes in demand support induces supply responses that embody some changes, some newness and can create new investment opportunities.

Second, the increased mechanisation could partly, or mainly, be induced by the countries' concerned increased participation in international trade. Any productivity growth induces exports successes that in turn has a feedback impact on further productivity growth and so on (Kaldor, 1970). Such long run exports-led may demand a balance of payment constrained growth (see Thirlwall, 1979; 2011). At the same time, adjustments to this growth path may underpin the role of demand management policies that in turn adds to the division of labour-led supply dynamics and permit the external economies-based macro expansions. (see Padhi, 2020).

Third, Marx's economic development perspective, when the growing productivity enhancing efforts have to be traced to employment dynamics, the learning by doing base, can also still be relevant. An increased mechanization and such science based technological dynamism of course negates larger employment-based dynamism. However, all observed technological dynamism might not be traced only to autonomous science-based improvements. A favourable aggregate demand climate, whether policy-induced or endogenous to other types of improvement, can give greater market support to the more generalized expansions. The demand-led expansions, unlike the science-based ones, can involve manufacturing, labour processing bases and can induce employment-based dynamism. A study of the growth prospects facing the mechanization can have their own independent empirical observations status; not to be posited as an assumption. If a higher pace of investment and growth of specialization-led capital productivity were to exist, and the resultant growth of output that outpaces the increased capital intensity-index labour productivity, the employment growth (and higher capacity utilization) again resurfaces as dominant arguments. In addition, if proper broad-based competitive forces dominate

international trade, the ones derived from employment-based learning by doing dynamism cannot be ignored.

In this sense, the mechanization versus employment processing base may not permits any sharp "either-or" distinctions. Even at a later stage of development, competitive forces might not neglect the employment-based learning by doing dynamism that also adds to science based dynamism to add to greater competitive advantages. That is, if employment opportunities embedded in new industries is the basic source of learning by doing dynamism, which also shapes competitiveness, any linear predictions are a difficult task. Studies on competitiveness, for instance, also show there have been instances when centralized oligopolistic firms have been outcompeted by newer firms that increasingly rely more on a decentralized system, say, Silicon Valley's small firms-based networking system (Saxenian, 2000), which can be basis of much of learning by doing-based growth of innovations. Smaller firms have better learning by doing capacity to innovate (Arrow, 2000). There are cases of dynamic forms of labour-processes-based small firms' centric industrial clusters (see Bagchi, 1999).

Further, it is true R&D-based innovations dominate, but the nature of innovations can count. Studies (see Edquist et al., 2000; Vivarelli, 2015) highlight how product innovations, the emphasis on growth of varieties of products, can be the base of new opportunities for employment expansions. These can relate to Young (1928) stress on how the focus not on larger scale economies per se, but on division of labour-based innovations translate into constant coming up of new products, new industries, new specialized tasks etc. in a continuous way. Such expansions not only can create Youngian external economies, and ensure the broad based participations, but also could be the main source of new ideas, new way of doing things that reinforces the science-based innovations (Padhi, 2019). Empirical focuses on the rate of profit issues can recognize the possible symbiotic relationship between the different forms of profits and how the dynamic forces underlying each interacts. If so, the focus can be on some form of dynamic organizational form of production that supports the interactions, with a stress on employmentism – the generation and expansion of good employment opportunities. Young (1928)-Kaldor (1972) cumulative causation growth could provide the scope of a debate not on a possible complete collapse of the rate of profit, but on its stability.

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