tracted to the "market features" of the Chadwick plan in the special case of railroads, features which would make the interventions of general government more palatable and more efficient.

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as added fuel for his case, but Mill cautioned Chadwick against this move, noting that: "It is much better that your results should be seen to come, as they do, from your own thoughts and observations" (ibid., p. 592). Mill, unlike Chadwick, perceived great benefits from privately owned and operated large-scale productions. See Mill, "Chapters on Socialism," *Essays on Economics and Society*, ed. J. M. Robson, *Collected Works*, vol. 5 (Toronto, 1967), pp. 730–31.

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COMPETITION, MONOPOLY, AND DIFFERENTIAL PROFIT RATES – A RECONSIDERATION OF THE CLASSICAL AND MARXIAN THEORIES

by
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Many Marxist political economists, like Rudolf Hilferding, Maurice Dobb, Paul Sweezy, Josef Steindl, Paul Baran, et al., distinguish between two stages of capitalist development: one, of competitive capitalism, and the other, of monopoly capitalism.

These writers maintain that competitive capitalism at the end of the nineteenth century revealed an inherent tendency toward monopolization. An increasing proportion of fixed capital, the concentration and centralization of capital, an increasing average size of production units, cartels, mergers, the rise of multi-unit corporations, and the rise of financial capital resulted in oligopolized or monopolized industries and a monopolistic stage of capitalism. In monopolized industries, market prices of commodities were raised and the «equal profit rates of competitive capitalism (were) turned into a hierarchy of profit rates, highest in the most completely monopolized industries, lowest in the most competitive» (Sweezy 1968:258). Thus, differentials in profit rates were considered as a sign for the monopolization of the markets.

However, recent discussion about the classical and Marxian theories has raised doubts about the correctness of this description of the two stages in the development of capitalism. The underlying notion of competition in the theory of monopoly capitalism also has been questioned (see Clifton 1977; Weeks 1978; Shaikh 1978, 1979). The theory of

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monopoly capitalism uses a notion of competition that seems to be related more to the neoclassical theory of perfect and imperfect competition than to the classical and Marxian theories. In this paper we want to work out the differences of the classical and Marxian theories of competition on the one hand, and modern competitive equilibrium theory, on the other and contrast the empirical evidence on differential profit rates especially with the Marxian theory.

1. *Classical and Marxian Theories of Competition*

In the following we consider a theoretical framework which allows us to discuss the empirical phenomenon of differential profit rates. We inquire into the difference between notions of competition in neoclassical and classical/Marxian economics. We also compare classics (Smith and Ricardo) with Marx.

1.1 On the Classical Theory of Competition

As mentioned above, the classical theory of competition very often has been interpreted from the standpoint of the neoclassical theory of perfect competition (see Stigler 1957; Arrow/Hahn 1971), according to which Adam Smith was the «creator of general equilibrium theory» (Arrow/Hahn 1971, 2). Nonetheless, classical political economy developed a notion of competition and the long-run position of the economy quite different from the neoclassical theory of perfect competition. As Garegnani (1976, 1977), Eatwell (1978), Roncaglia (1978) have shown, the main features of classical political economy are the concept of a social surplus, the center of gravity concept, and the particular notion of «equilibrium». These three are essentially related to the concept of competition in the classical scheme (1).

1. — The classical political economy assumed, once the technical condition of production (A), the real wage vector (d) and the workers per unit of output (l) are *given*, the system of production generates a surplus product (S) that can be distributed among the remaining classes

(1) We refer here to the neo-Ricardian interpretation of the classical and Marxian theory of competition. As readers of my paper have pointed out, it has to be questioned whether the neo-Ricardians have interpreted the *Marxian* theory of competition correctly by neglecting the difference between the classical and the Marxian theory of competition. Regarding this question, see Shaikh (1979) and Semmler (1981).

of the society (2). Since, in the classical theory, workers' consumption is regarded as a necessary part of the social reproduction, the surplus is defined as:

social product − replacement of means of production − necessary consumption $= X - (A + dl)X = S$ (surplus product).

Competition only determines the distribution of the surplus product, not the size of it. This system of production is assumed to be a reproducible one. The *values* of the reproducible commodities, according to the classical political economy, are determined by their *cost of reproduction*. The costs of reproduction of the commodities are considered as the center of gravity for the market prices, the actual prices.

2. — For A. Smith, the *natural* prices are considered the center of gravity (3). The natural prices are composed of the rewards of the factors of production (wage, profit, rent). For Ricardo, and later for Marx, the *direct and indirect labor requirements* are regarded as the center of gravity for actual prices. The natural prices for the commodities and the natural prices for the factors of production in Smith's sense are independent of short-run demand and supply. The natural prices are the result of the long-run effect of competition, which determines the «natural employment of each factor of production» (Smith). It is assumed that an equalization of rates of return on factors of production takes place, enforced by the tendency of the factors to move from areas of low to high returns.

If we assume equalized prices of factors of production, and do not consider rent as the price of land, then according to Pasinetti (1975) we may write the natural prices — i.e., the centers of gravity in Smith's concept — as vertical integrated wages and profits:

$$p = wl + pA + rpB$$
$$p(I-A) = wl + rpB$$
$$p = wl(I-A)^{-1} + rpB(I-A)^{-1}$$

(2) This assumption of a given *physical* system in the classical theory is stressed in the neo-Ricardian interpretation of the classic. Yet the discussion as to what extent this interpretation is correct is not complete, see Garegnani (1976).

(3) Smith speaks of such center of gravity when he develops the notion of natural price: «The natural price, therefore, as it were, the *central price, to which the prices of all commodities are continually gravitating*. Different accidents sometimes keep them suspended a good deal above it, and sometimes force them down, even somewhat below it. But whatever may be the obstacle which hinders them from setting in this center of repose and continuance, they are constantly tending toward it (Smith, 1977, p. 156).

$(I-A)^{-1}$ is the Leontief inverse which, multiplied by wl, gives us the vertical integrated wages and, multiplied by rpB, gives us the vertical integrated profits. B is the capital stock matrix, p the price vector, r the uniform profit rate, w the wage, and l the vector of direct labor requirements per unit of output. Thus, we can write the price for a commodity:

$$p_i = w_i' + \pi_i'$$

w_i' and π_i' are the vertical integrated wages and profits. According to Ricardo and to Marx, the center of gravity is given by the direct and indirect labor requirements. We may write relative prices according to Shaikh (1976):

$$\frac{p_i}{p_j} = \frac{w\Lambda_i + \pi_i'}{w\Lambda_j + \pi_j'}.$$

Since $l(I-A)^{-1} = \Lambda$ is the vector of direct and indirect labor requirements, we get the following relation:

$$\frac{p_i}{p_j} = \frac{\Lambda_i\left(1 + \frac{\pi_i'}{w_i'}\right)}{\Lambda_j\left(1 + \frac{\pi_j'}{w_j'}\right)}.$$

The relative prices are determined by relative direct and indirect labor requirements and another term, which reflects income distribution. Ricardo analysed, especially in his later writings, how relative prices are pertubed by changes in income distribution between labor and capital. However, in his view the labor embodied theory was still an adequate first approximation to a theory of value and a sufficient first determination of the centers of gravity for market prices.

3. — As mentioned above, the classical theory of price determination should not be interpreted as one containing an equilibrium concept of price. It is not a competitive equilibrium in the sense of general equilibrium theory. It is a center of gravity around which actual prices (market prices) fluctuate, reflecting the long-run position of the economy. The assumption of perfect competition, that prices react to excess supply and demand and *converge* to *equilibrium prices*, need not be made. Smith, for example, does not speak about « equilibrium prices » or equilibrium wage or profit rates, but about *normal* or *average prices*, and normal or average wages and profit rates.

The classical concept contains two laws that determine prices (see Deleplace 1981). One is that natural prices (or prices of production) determine the *centers of gravity* around which market prices fluctuate. Another is that supply and demand determine the *fluctuations* (the only law that is fundamental in neo-classical economics). This latter law plays a lesser role in classical theory than it does in modern competitive equilibrium theory.

Demand and supply, like other forces (e.g. random events, speculation, restricted mobility of capital, or temporary monopolies), cause *deviations* from the center of gravity, but they do not determine the center itself. The center is determined by the cost of reproduction (for the commodities as well as for the commodity labor power)(4).

In the interpretation of the classics, a failure to recognize the role of this center of gravity characterized neoclassical theory; furthermore, it is absent in the modern distinction between « competitive » and « monopoly » capitalism, (see Baran/Sweezy 1970, ch. I).

I.2 On the Marxian Theory of Competition

Compared with the classics (Smith and Ricardo), Marx formulated a more generally, differentiated and dynamic conception of competition and price. Moreover, in Marx competition is a *derived* concept, and one which cannot be considered only an equilibrating force but also a force producing disequilibria, distortions, and misallocation of resources. Competition in the Marxian sense is the *result* of the self-expansion of capital. That is, competition is related not only to the circulation of commodities but also to *production, realization* and *distribution* of the economic *surplus* (to the surplus value in the Marxian theory)(5). In *production,* the result of competition between capitals is to produce extra surplus value by increasing the productivity of labor. In *circulation*, competition between capitals aims at *enlarging the market share* and improving the conditions for the realization of surplus value. The intersectoral competition of capitals is related to the *distribution* of surplus value, in that the result is the tendency to equalize the rates of profit in all sectors.

Thus in Marx, prices of production, which in the long-run are given by the average costs of production and the average profit rate on capital

(4) The classical theory also shows a certain similarity to modern mark-up theories of oligopolistic pricing, where short run demand and supply conditions do not play an important role. Also see Deleplace, 1981.

(5) An excellent summary of the Marxian theory of competition can be found in Kuruma, 1973.

advanced, are the regulating centers for market prices (6). Since prices of production can be derived from values (or the law of value), in the last instance market prices are regulated by socially necessary labor time. However, competition between *capital* does not bring about a smooth process of *adjustment* and *convergence* toward equilibrium prices and quantities, but *disequilibria* and *deviations* from the centers of gravity. Therefore, according to the Marxian theory, we can see the existence of differential profit rates among capitals, of *different industries* because of the deviation of market prices from prices of production. Moreover, the competition of capitals within one industry brings about differential profit rates *between capitals in the same industry* (7). This concept of competition allows us to discuss the existence of differential profit rates:

1. — Production techniques are not the same for all firms within an industry. Within industries we have a coexistence of different techniques, we see firms with most efficient techniques, average technique and least efficient technique. Firms with better techniques can capture surplus profits. Differential profit rates among capitals of the same industry are to be expected. Differential profit rates among capitals within one industry always exist without any tendency towards equalization of profit rates.

2. — Although there is a tendency to equalize the rate of profits across sectors the question still remains how long it will take for *industry* profit rates above or below the average to approach the social average rate of profit. Marx answered that the time required to adjust supply to demand, market prices to prices of production, and profit rates to the social average depends upon the concrete conditions of the production and circulation of commodities (8). The time required to build up new capacity

(6) For a very good treatment of the relation of prices of production to market prices, see DELEPLACE (1981)

(7) As referees of my paper have pointed out, we find different notions of competition in different periods of Marx's writings. We might have to distinguish between his earlier writings (critique of Proudhon, Grundrisse) and his later writings (Capital) where the notion of competition is worked out much comprehensively. Here, I refer only to his later work.

(8) This may show the following quotation:

... the oscillation of market prices, rising now over, sinking now under ... the natural price, depends on the fluctuations of supply and demand ... The average periods during which the fluctuations of market prices compensate each other are different for different kinds of commodities, because with one kind it is easier to adapt supply and demand than with the other. (K. MARX, 1970, p. 208).

in industries where the profit rate is above average, to withdraw money capital from fields of employment with low profit rates, to produce and to circulate commodities — that is, the turnover time of capital — is different in each industry. Hence, no general theory about the adjustment time required to reach an average rate of profit is possible.

The amount of capital that is necessary to produce at the socially necessary cost of production also differs between industries. At one level, these *restrictions on the mobility of capital* can be overcome by the credit system but, nevertheless the restrictions exist and they are different in each industry. In the Marxian theory, such restrictions on the mobility of capital inhibit the tendency toward an equalization of profit rates. In this setting, supply and demand and long adjustment time — in Marx derived from a long turnover time of capital — may play a certain role in the formation of differential profit rates.

3. — On the other hand Marx also saw the possibility of other barriers to the mobility of capital.

a. When the access of capital to conditions of production (like resources or means of production) or other input factors is restricted, then the entry of new capital is limited. In this case there will be constrains on the reproduction of commodities. The market price can be higher than the price of production, and a profit rate above the average can arise. On the other hand, there may be constraints on the movements of single capitals out of industries if the transfer of capital faces considerable difficulties. If, in certain industries, large amounts of fixed capital are required, these cannot be transferred easily when profit rates are declining (9). Industrial capital is not as mobile as merchant capital or money capital.

b. Moreover, barriers to the mobility of capital exist in the production of agricultural products, or in the production of minerals or raw materials. Marx analyzed artificial barriers to the mobility of capital in his theory of

(9) Marx says:

This movement of capitals is primarily caused by the level of market prices, which lift profits above the general average in one place and depress them below it in the other. Merchant's capital is left out of consideration and it is irrelevant at this point ... Yet, with respect to each sphere of actual production — industry, agriculture, mining, etc. — the transfer of capital from one sphere to another offers considerable difficulties, particularly on account of the existing fixed capital. Experience shows, moreover, that if a branch of industry, yields unusually high profits at one period, it makes very little profit, or even suffers losses, at another, so that in a certain cycle of years the average profit is much the same as in other industries. (MARX, Vol. III, p. 208).

ground rent. Due to ownership of conditions of production landowners can capture an absolute rent because land is a limited resource and agricultural products cannot be reproduced easily. The competition of capital between fields of production brings about a rent for the landowners. The same is true in the production of minerals or raw materials, and even in some fields of industrial production.

Thus the Marxian theory analyses basically three causes of differential profit rates for industrial capital [10]. The first is the productivity of some capitals within one industry being above the average productivity (surplus profits for more efficient capitals and lower profits for the least efficient capitals). The second is a disequilibrium of supply and demand, and a long turnover time of capital in certain spheres of production. The third occurs when there are mobility barriers to capital, i.e. when access to the conditions of production is restricted and the entry of new money capital or the exit of old established capitals is limited [11].

It is clear that Marx did not assume (especially in Chapter X in Volume III) that profit rates *will be* equalized in all spheres of production. The process of competition between capital produces differentials of profit rates as well as an equalization tendency [12]. As Marx put it: « ... the general rate of profit is never anything more than a tendency, a movement to equalize specific rates of profit » (Marx, Volume III, p. 366) and « ... The average rate of profit does not obtain as directly established fact, but rather is to be determined as an end result of the equalization of opposite fluctuations » (Marx, Volume III, p. 368).

II. *Empirical Evidence on Differential Profit Rates*

In the next step we want to contrast the empirical evidence on differential profit rates with the theory of competition and differential profit rates in the classic and especially in Marx. In the empirical oriented

[10] Whereas in the Marxian theory « the general rate of profit is never anything more than a tendency, a movement to equalize specific rates of profit » (MARX, Vol. III, p. 366), in the neoclassical theory of competition differentials of profit rates are a result of « market imperfections ».

[11] The first case is called in Marxist literature « artificial monopoly », if a capital is able to maintain the position as the most efficient producer in an industry in the long run (see ALTVATER, 1977, p. 177). Marx refers to the second possible cause of a higher profit rate also as « accidental monopoly » (see MARX, Vol. III, pp. 178 and 694) and to the third one as « natural monopoly ».

[12] It should be kept in mind that Marx never assumed that actual prices *converge toward* prices of production and profit rates converge toward the social average rate of profit.

literature we see five types of studies of differentials of profit rates [13]. The first three types of studies refer to (1) industrial concentration, (2) entry barriers, and (3) collusion as causes for market power and thus for persistent differential profit rates. The other two types of studies view (4) industry supply and/or demand conditions (5) firm size as causes for differential profit rates.

1. — *Older cross-sectional and time series studies for the 1930's, 1940's and 1950's concerning concentration and profit rates usually reveal a significant positive relation between concentration* and *profit rates* (see Bain 1951; Schwartzman 1957; Mann 1966; Stigler 1963; Collins/Preston 1970), although the correlation coefficients are sometimes very low (see Bain). The hypothesis is that concentration leads to collusion and collusion to higher profit margins or profit rates. According to Bain's results concentration leads to higher profits when $CR_8 > 70\%$; and according to Stigler's results, when $CR_4 > 60\%$ (CR, the concentration ratio for 4 or 8 firms). But the methodologies and data bases are in the main very weak. Moreover, these studies could not explain the possible *persistence* of higher profits due to concentration in the seller's market (see Brozen 1971; Demsetz 1973a, 1973b). It has been argued that competition and rivalry, even among the big companies, make the profit rates of oligopolies converge toward a normal one. This is the main argument used by Weston, Ornstein, Demsetz, and Brozen. Indeed they showed, once the data for the concentration ratios and the cross-sectional and time series data of Bain, Mann, and Stigler were reexamined, that differential profit rates due to concentration no longer exist (see Brozen 1971a; 1971b, 1973). However this discussion left open the possibility that concentration may lead to higher profit rates if high entry barriers exist in those industries.

2. — Using Bain's method for measuring entry barriers such as economics of scale, product differentiation, absolute cost advantages and large capital requirements a number of studies presented in the 1960's and 1970's revealed a significant positive relation between *high profits* (profit margins or profit rates) and *entry barriers* (Bain 1956; Mann 1966; Comanor/Wilson 1967; Stonebraker 1976; Orstein 1973; Qualls 1972,

[13] In empirical literature three measures of profit rate are used: The first is the price/cost margin $P-C/P$, the second is the profit margin $P-C/C$ and the third is the profit over assets or equity $P-C/A$ or $P-C/E$. Although it would be necessary to calculate profit rates for industry or firms according to the Marxian and not orthodox theory in order to test the post-Marxian theory of monopoly, but because of a lack of data this task cannot be fulfilled.

1974). They also demonstrated that high concentration ratios have an effect on prices and profits over time *only* if at the same time there are high barriers to entry. Otherwise there would be potential competitors, who could enter the market and bring down the profit rate to the average (limit pricing). In this approach it is conceded that, if the market barriers are low and, hence, threaten of new competition, concentration ratios do not show any significant positive relation to differentials of profit rates. On the other hand, if high entry barriers exist, high concentration ratios have a significant effect on profit rates. This hypothesis seems to have a strong empirical basis, and recently a number of empirical studies have supported it (see Qualls 192; Mann 1966; Stonebraker 1976). It was shown also that, across industry groups with high entry barriers, the dispersion of profit rates is very great and so is the dispersion of profit rates between firms in the same industry (see McEnally 1976).

This concept of entry barriers was also extended to other possible cases. *First*, it was assumed that *oligopoly groups* also developed *strategies against new competition* (for example, they could maintain underutilized capacities in oligopolistic industries as an impediment to entry). Barriers to entry are thus no longer to be seen as structural determinants of the oligopolistic markets (like economies of scale, heavy capital requirements, and absolute cost advantages) but as an outcome of the activities of the oligopolistic firms themselves. People like Harrod, Modigliani, Sylos-Labini, and Lombardini have argued in this manner since the 1950's and Caves and Porter recently came back to this concept of the entry-preventing strategies of oligopolistic groups (see Caves/Porter 1977). But, since the measurement of these activities and strategies of large firms is quite difficult, no empirical study of that subject is available. *Second*, it was shown that, not only entry barriers but also *exit barriers* cause differentials in profit rates. Firms will stay in industries with profit rates below the average, if there exist exit barriers like high investments in selling costs, high expenditures for research and development, a high minimum efficient scale of production, or heavy capital requirements. In an empirical paper, Caves and Porter (Caves/Porter 1976) showed a significant negative correlation between exit barriers and profit rates. Since the measured exit barriers are almost the same as the entry barriers used in former conceptions, the concept of entry barriers became very ambiguous. For West Germany during the period of stagnation in the seventies, the profit rates in industries were not correlated with concentration but were highly negatively correlated with wage share and capital/output ratios, an indicator of a high proportion of fixed capital (see Semmler 1980). This meant that capital

could not leave an industry, even if the profit rates were low. In a period of stagnation and declining demand, entry barriers may turn out to be exit barriers and profit rates may be, over a certain length of time, below the average rather than above it. (This already was pointed out in Hilferding's book, *Das Finanzkapital*). These results do not contradict the earlier findings, since those findings were related to the prosperity of the 1950's and 1960's. Heavy capital requirements and high capital/ouput ratios may be barriers to entry, but they also can be barriers to exit in a period of stagnation and declining demand. Thus as it was shown these barriers are in fact *barriers to mobility of capital*. (Capital requirements, functioning as a mobility barrier to capital are illustrated in the steel industry in the 1970's).

3. — Other studies have been conceived concerning *cooperative activities* of oligopoly firms and *collusion among firms* (see Ash/Seneca 1976). Ash/Seneca found that, if we exclude other factors which may cause differentials of profit rates (such as concentration, or growth rates of industries), then collusion shows a significant negative effect on profits ([14]). Therefore collusion may be a *result* of low profits, and not a *cause* of high profits. But since most cooperative activities of firms are secret and may be seldom uncovered, the results of the Ash/Seneca study may not be very convincing (see also Fras/Grees 1977).

4. — Other studies do not refer to the concept of monopoly power as measured by concentration, entry barriers and collusion but to industry supply and demand conditions. These studies demonstrate that the differentials of profit rates are significantly related to the productivity, capital/output ratios, and unit wage costs of each industry (see Bodoff 1973; Schwartzmenn 1956) and to growth and demand conditions (see Ornstein 1973; Hall/Weiss 1974; Winn/Leabo 1974). Most of these studies reveal that *differentials of profit rates* are strongly related to the *conditions of production and realization* of commodities. Taking into account the effect of concentration and sometimes even of entry barriers in multiple regression equations, it has been shown that the conditions of production and demand have a dominant effect on differentials in profit rates (see Ornstein 1973; Winn/Leabo 1974). Studies for other countries also have demonstrated these results (for France, see Deleplace; for Germany see Sass 1975 and Semmler 1980). However, results seem to be convincing only if we assume

([14]) Ash/Seneca used a sample of 51 collusive firms out of the Fortune 500 lists for the period of 1958-1967, which consists of companies that were found guilty of Sherman Act conspiracy charges during that period and 50 noncollusive firms.

barriers to mobility of capital, that is, barriers to moving from industries with low profit rates to industries with high profit rates.

5. — Another kind of study examines the relation between *firm size* and *differentials of profit rates* and growth rates of firms. But there is no study which unequivocally reveals a dependence of profit rates on firm size (see Marcus 1969; Ornstein 1973). It is usually assumed and demonstrated that medium-sized firms or firm size groups below the largest firms have the highest profit rates and growth rates (see Stekler 1963). On the other hand, studies have been conceived that reveal not a difference in profit rates and growth rates among firms but differences in *variance* and *stability* of profit rates and growth rates among groups of firms of different size. Smaller firms may have the same profit rates as big firms, but their profit rates are more unstable and they vary strongly in the course of the business cycle (see Singh/Whittington 1968; Eatwell 1971).

III. *Modern Studies and Marxian Theory of Competition*

Let us now turn to the question whether the results of the empirical studies on the causes of differentials of profit rates support or contradict the Marxian theory of competition, outlined in part I of the paper.

1. — The first three types of studies are considering *monopolization of industries* (concentration, entry barriers, and collusion) as the main reasons for profit rate differentials. Most of the recent studies have revealed that there is no *persistence* of the profit rate differentials *due only* to *concentration*. *High entry barriers* (product differentiation, large-scale production, absolute cost advantages, heavy capital requirements, high capital-output ratios, and entry-preventing strategies of oligopoly groups), which deter new competitors and allow entry-preventing pricing, are necessary preconditions for decreasing competition within industries. High profits are revealed only when high concentration is correlated with high entry barriers, which might facilitate collusion within or across industries. Hence the question arises, to what extent do these empirical findings support the hypothesis of a persistent monopolization of industries? Any attempt to use these empirical studies in support of the monopoly capital hypothesis should be questioned in light of three considerations.

First of all, these empirical results do not mean that there is a *stable* and *persistent hierarchy of profit rates* in the long run. As mentioned, studies for the 1970's have revealed that entry barriers turn out to be

exit barriers in periods of stagnation and declining demand. Large-scale production, high capital requirements, and high capital output ratios are synonymous with a high proportion of fixed capital in industries. Large capital losses will result if capacity has to be adjusted to declining demand. The profit rate can decrease without capital being able to adjust at once by moving out of the industry. Not concentration and entry barriers but mobility barriers of capital seem to be the reason for differentials of profit rates. Mobility barriers are different in all industries. The mobility of capital and the period of adjustment toward an average profit rate are different for different industries. This fact is revealed by the empirical tests on concentration and entry barriers. The empirical data can be interpreted in such a way that the profit rates in industries with heavy capital requirements fluctuate much more slowly than in so-called 'competitive' industries. Industries with fewer suppliers and high entry barriers might have a longer adjustment time and thus the amplitude for the fluctuation of profit rate is here much longer than in other industries with lower proportion of fixed capital.

Second, and more important, *fewer firms* on the market, high entry barriers, and the possibility of collusion *do not mean that competition among capitals is abolished*. As Marx and the major part of the post Marxian literature assume, regardless of the concentration and centralization of capital, capitalism is regulated by self-expansion and accumulation of independent units of capital. Competition among capitals in the production, realization, and distribution of surplus value cannot be abolished by concentration and entry barriers. The main principle of competition is to cheapen the commodities by changing methods of production and capital accumulation. This seems to be also true for fewer capitals within one industry in a country, because international cost competition still exists (it became even more severe in the 1970's). Moreover fewer capitals, larger firms and heavy capital requirements might facilitate collusion within an industry, but they also can mean an increasing interdependence among capitals. (Modern game theory illustrates the ambiguity of the effects of increasing concentration on competition among firms).

Third, the erection of entry and exit barriers, as indicators of less mobility of physical capital, do not necessarily mean that the *mobility of money* capital will decrease. The mobility of physical resources may have decreased due to an increase in fixed capital in certain industries. However, the rise of large multiplant and multiproduct corporations was accompanied by a creation of large pools of money capital. Historically, as the units of capital have become larger, the mobility of money capital has

increased. Large units of capital, i.e., large concentrated capitals and conglomerates, are independent centers of financial power. They can shift money capital quite easily (see Clifton 1977) from region to region and from industry to industry when the competitive fights of capitals make such actions necessary. For example, it is well documented that the international mobility of the money capital of large corporations has increased tremendously in the post-war period. The increase in the mobility of money capital, due to the generation of large scale capitals, was overlooked in Hilferding's as well as in the post-Marxian discussions on the genesis of monopoly. In these writings monopoly appeared as a result of concentration and increasing immobility of physical capital; the impact of the creation af large financial pools and the increase in the mobility of money capital on the competition of capital has been neglected.

In sum, concentration and entry barriers can lead to two temporary consequences: a decrease of market competition within (and/or among) industries and a rise of market prices above prices of production. However, entry barriers are also exit barriers, a decreasing number of firms within an industry does not necessarily entail a decline of competition, and the increasing immobility of physical capital may be accompanied by an increasing mobility of money capital. Monopoly profit seems to be related to special conditions and cases; however, in the long-run it is threatened by self-expansion and competition from other capitals.

2. — As shown above, another type of empirical study examined differentials in *industry supply and demand conditions* and their consequences for *differentials of profit rates*. Those differentials of profit rates can be explained easily by the Marxian theory of competition. According to this theory, supply and demand are never equal. Differences in profit rates caused by differences in productivity, capital-output ratios, wage shares, and growth rates of industries may be explained by differences in time to adjust supply to demand: that is to say, the time to build up new capacity, to produce and circulate commodities where the profit rate is high, and to reduce capacity and withdraw capital from industries with low profit rates.

The circuit of capital requires a period of time which varies among industries. Thus disequilibria between supply and demand caused by those *natural restrictions* to mobility of capital cause deviations of market prices from prices of production (the gravity center). This seems to be the reason that empirical tests reveal a strong relation between supply and demand conditions of industries and differentials of profit rates.

3. — How should the findings on the relation of firm size and differential profit rates be evaluated in the light of Marxian theory? As shown above, differentials in profit rates among firms are to be found in many studies. But there are no empirical studies that can support the hypothesis that the profit rate varies only with firm size. Rather they demonstrate differences in the *variance* and *stability* of profit rates among small firms and big firms. These findings are consistent with other empirical results concerning price changes in oligopolistic and competitive sectors during the business cycle. Oligopolistic sectors show more rigid and stable prices than the sectors with small firms, where prices fluctuate greatly during the course of the business cycle. The smaller dispersion of the profit rates of big corporations in comparison with small firms is only an expression of the fact that the profit rates of the big firms are much closer to the average rate of profit, whereas the profit rates of the small firms fluctuate much more around the average rate of profit (see Clifton 1977). Moreover, differentials in profit rates among firms and between firms of concentrated and unconcentrated industries do not contradict the Marxian theory of competition and prices of production as the center of gravity. Within industries there are always capitals with lower or higher costs of production, because of different techniques used by different firms within an industry. At the same market price or at the price of production, the firms have different cost prices and thus different profit rates. Thus, different rates of profit *among firms* is not necessarily a sign of monopoly power.

4. — Empirical findings often reveal a strong correlation between *concentration entry barriers* and *mark-ups*. These studies show differences in price/cost margins $\frac{P-C}{P}$, in profit margins $\frac{P-C}{C}$, or in mark-ups: $(MC + WC)(1 + \mu)$ among industries or firms (MC = material cost, WC = wage cost, μ = mark-up). In linear regressions, concentration and entry barriers are correlated with price/cost margins, profit margins, and mark-ups (see Qualls 1972, 1974). Nevertheless, significant positive results are not equivalent to differentials of profit *rates* due to concentration and entry barriers. Since: $\frac{P-C}{P} = \frac{rK}{Px}$, $\frac{P-C}{C} = \frac{rK}{Cx}$ and $(MC + WC)(1 + \mu) = MC + WC + \frac{rK}{x}$ (where K/x is the capital/output ratio), differences in price/cost margins, profit margins, and mark-ups might only reflect differences in capital/output ratios or in the

organic composition of capital among industries or firms([15]). Since in concentrated industries or industries with high entry barriers the capital/output ratios are generally higher (see Ornstein/Weston 1973), the firms or industries with identical profit rates might have very different price/cost margins, profit margins, or mark-ups. The mark-up over prime cost – in Kalecki's theory a measure of the degree of monopoly power – might be only another expression for the *uniform* profit rate. The mark-up over prime cost is: $\mu = \frac{r}{(MC+WC)} \cdot \frac{K}{x}$. This mark-up must be different in industries where the capital/output ratio K/x is different, whereas the profit rate, r, may be the same in all industries. The mark-up is equal to the profit rate only if we assume a one-year turnover, and thus equate stock and flow (see also Brody 1974-89). Thus we can conclude that empirical observations about different mark-ups in so-called oligopolized and non-oligopolized industries and different changes in mark-ups in the long-run or in the course of the business cycle do not confirm increasing market power or profit *rates* in so-called oligopolized sectors.

5. — To what extent can *mark-up* pricing itself be considered a result of increasing monopolization in any industry? As mentioned above, mark-up pricing does not necessarily signify monopoly power. It does not even preclude the existence of a uniform profit rate. As shown in many recently-published articles, the pricing procedure that has been developed by large corporations since the 1920's seems to be quite consistent with the classical and Marxian theories of prices of production as center of gravity for market prices. The pricing method of large corporations or oligopolies is oriented toward long-run normal costs, long-run normal output and long-run prices. Administered prices, mark-up pricing and target rate-of-return pricing do not result merely from a decreasing number of firms in an industry. They can be viewed as different, but slightly varying, methods to calculate a long-run center of gravity for prices which guarantee an average rate of return on investment for large corporations and, thus, also guarantee a steady rate of self-expansion of capital. However, the large corporations can have profit rate differentials for different lines of business. Recent discussions on the pricing methods of oligopolies or large corporations (see for example Coutts/Godley/Nordhaus 1978, Eichner 1976, Clifton 1979) show that the pricing methods developed by large corpora-

([15]) Depreciation is not considered here, it can be regarded as a part of the gross profit.

tions since the 1920's do not contradict the Marxian concept of prices of production. On the contrary, they seem to be quite consistent with it([16]).

IV. *Marxian Prices of Production and Differential Profit Rates*

The discussion in the last part of the paper showed that we can reduce the five causes for differential profit rates discussed previously to three causes of differential profit rates which are already discussed in the classic and especially in Marx. As discussed above, we indeed can expect differential profit rates in an actual economic system due to (1) productivity and cost differentials of firms within industries, (2) to disequilibrium of supply and demand and different turn-over times of capital in different industries, and (3) barriers to mobility of capital between industries. Thus, for a certain length of time, we may have profit rates in industries above or below the average. In this case, we have to make more precise what a *social average profit rate, prices of production* and *cost of production mean*. To solve this problem, the concept of vertical integration can be used again.

If we take for granted not uniform profit rates, but differentials of profit rates between industries then the *center of gravity* for the market price j is:

$$\bar{p}_j = w_j' + \bar{\pi}_j' \quad \text{with} \quad \bar{\pi}_j' = \{pB <\bar{r}> (I-A)^{-1}\} j$$

where w_j' represents vertical integrated wages, and $\bar{\pi}_j'$ vertical integrated profits for differentials in profit rates in industries, $<\bar{r}>$ is a diagonal matrix of different profit rates in industries because we do not have a uniform profit rate r (see Part I of this paper). A and B represent matrices for intermediate inputs and capital stock, thus we get modified prices of production $\bar{p}$ as the center of gravity for market prices. In this case, we also get a social *average rate of profit* $\bar{r}^0$, but this might deviate from the uniform rate of profit r in Part I, although it can be assumed that the deviation is not very significant. The new social average rate of profit is:

$$\bar{r}^0 = \frac{\bar{p}x - w'x}{\bar{p}B(I-A)^{-1}x} = \frac{\bar{\pi}'x}{\bar{p}B(I-A)^{-1}x} \quad \text{where} \quad \bar{\pi}' = \bar{p}B <\bar{r}> (I-A)^{-1}$$

$\bar{p}$ represents the modified prices of production, w' vertical integrated wages $wl(I-A)^{-1}$, x the output vector and $\bar{p}B(I-A)^{-1}$ the vertical integrated capital stock. An actual market price p_j^* may be above, equal to, or below the modified price of production $\bar{p}_j$.

([16]) This last point has been developed further in my book manuscript (see SEMMLER, 1981, Ch VI).

We can call the difference $\bar{r}_j - \bar{r}^0$ the deviation of the actual profit rate from the social average profit rate. Because there is still a center of gravity $\bar{p}_j$, actual prices are not an arbitrary phenomenon. The modified prices of production $\bar{p}$ are now the center of gravity for the actual prices. Because competition is producing deviations of profit rates from average profit rates, and uniform profit rates never exist, it would be more realistic to assume those modified prices of production as center of gravity for market prices.

When $\bar{r}_j > \bar{r}^0$, however, this difference does not always indicate market power in industries. As we have seen above, the deviation of $\bar{r}_j$ from $\bar{r}^0$ may be caused by (1) higher productivity and lower cost of production for firms in industries, (2) disequilibrium of supply and demand, and (3) restrictions on the mobility of capital. Only in the third case may the difference $\bar{r}_j - \bar{r}^0$ express market power and monopoly profit rate. It might be that firms in industries have lower input costs because the commodities entering industry j include profit rates below the average (see Steedman, 1979), or firms in industry j produce a surplus profit as a result of lower cost of production (case 1). In these cases, we have a higher profit rate in industry j without its being a monopoly profit rate.

Thus, we must also redefine the center of gravity for the *cost of production* of industry j to take out the effect of lower or higher cost of production caused by differentials of profit rates on profit rate j. This can be done by the following power series which measures the vertical integrated cost of production:

$$c' = w' + \sum_{n=1}^{\infty} \bar{p}B <\bar{r}> A^n .$$

A higher profit rate is a clear-cut measure of monopoly profit rates if profit is measured as the difference between average price and vertical integrated cost of production, i.e., as the difference $\bar{p}_j - c_j'$. (The same corrections have to be made for industries with profit rates below the average). Empirically measured profit rates do not correct for the vertical integrated cost of production. Therefore, empirically measured profit rates above the average must not indicate monopoly profit rates.

For *social aggregates*, however, it is intuitively clear that differentials in profit rates do not cause considerable distortions. If we assume prices of production p with a uniform profit rate and, on the other side, modified prices of production $\bar{p}$ with differentials of profit rates, then aggregates such as sum of prices, sum of profits, sum of constant capital, rates of

surplus value in money terms and rate of profit in money terms are not perturbed so drastically, since, for social aggregates, the distortions are much smaller (see Brody, 1974-125). Thus, for social aggregates the deviations of actual prices from modified prices of production and the deviations of monopoly profits $\bar{r}_j$ from the social average $\bar{r}^0$ might produce distortions in individual industries, but not so much for social aggregates.

V. *Some Conclusions*

As shown above, differential profit rates are likely to exist in actual economies and do not necessarily contradict a concept of prices of production as centers of gravity for market prices. Moreover, differential profit rates cannot be only related to a persistent monopolization of the markets. However, by criticizing the hypothesis of a *persistence* of a hierarchy of profit rates due to monopolized industries as well as due to firm size does not mean that we should deny the structural and institutional changes analyzed by post-Marxian writers. These structural and institutional changes are quite important and cannot be neglected. Hilferding, with his book, *Das Finanzkapital*, made the first important step toward such an analysis of the impact of large industrial and financial corporations on the economy. It seems to be true that the economic and social power of large units of capital (or large multiplant and multiproduct corporations) has increased ([17]). The large multiproduct and multiplant corporations are *large* scale *units of capital* and they have many production processes in many industries and regions at their disposal. What Marx analyzed in Vol. I of *Capital* as the power of capital over the production process and control over workers and means of production became very evident with the growth of large scale firms ([18]). The power over production processes has, according to Marx, another expression: it is the control over large financial resources (money capital). Multiplant and multiproduct corporations have large financial resources at their disposal. They can increase their money capital almost independently of the monetary policy of central banks. Moreover, the large financial resources of corporations allow them to allocate capital

([17]) Also, their social and political power is well known, and often analyzed (see EPSTEIN, 1979).

([18]) In Vol. I of *Capital* Marx did not analyse a « powerless » single product firm, but a production process of a *unit of capital* and its power over production relations. This analysis can be applied without any difficulties to the analysis of multiproduct and multiplant corporations.

among different industries and countries. With their financial power, they can also resist the unionization of industries or firms and resist wage and other union demands. However, this kind of economic and social power, derived from the control over many production processes, masses of workers, means of production and over large financial resources, does not necessarily mean power over all markets in which they operate. It is a power over production relations more than over exchange relations. Therefore it seems necessary to distinguish « monopoly power » from the *power of « large units of capital », which is not defined in relation to market structure, but more in terms of the notion of a unit of capital.*

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[4]

The Classical Theory of Wages and the Role of Demand Schedules in the Determination of Relative Prices

By PIERANGELO GAREGNANI*

My purpose in this paper will be twofold. First, I shall argue that the role of demand functions in determining prices depends on their role in determining distribution by means of the "relative scarcity" of the "factors of production." As a result, these functions would have no role in determining prices in the approach of Adam Smith and Ricardo who did not explain distribution in that way. These considerations will lay the ground for my second purpose: to distinguish between the notion of demand schedules for commodities and that of "effectual demand" in Smith and Ricardo, and to contend that the attempt to read in the classical authors as explanation of relative prices along the lines of modern theory is not well founded.

I. Demand and "Marginalist" Prices

The notion of demand schedule requires that the price-quantity relationship be determinate for all prices in the relevant range, and not only for the "natural" or "normal" price, which, however, is the only one that we may expect to experience under the non-accidental conditions that are likely to emerge through a repetition of the situation. We are therefore dealing with a much stricter notion than the immediately plausible one according to which an accidental fall in the quantity supplied below its normal level is likely to be accompanied by a rise in the price, and vice versa: in this notion no attempt would be made to determine the magnitude of such a rise, considered as depending on accidental factors.

This second, weaker notion (which, as I shall contend below, is that held by the classical authors) could not be represented by a curve in the familiar diagram: the prices corresponding to quantities below (above) the normal quantity q_n would be determinate only in that they are higher (lower) than the normal price p_n. If we wished to represent this notion in such a diagram, we would find *two areas*, North-West (NW) and South-East (SE) of the normal price-quantity point P, where NW indicates where the price is likely to be found when the quantity supplied has fallen accidentally short of q_n, and SE indicates where it is likely to be in the opposite case. To pass from this diagram to the familiar demand curve requires the assumption that the price-quantity relations falling into those two areas are as definite as they are at the normal point P. This, though formally tempting, cannot be done without a theory which allows us to determine those points.

The theory which has been advanced to that effect is the dominant one in its two aspects of: (*i*) asserting definite tastes for each consumer such that, given his income and any set of relative prices, the quantities of goods he demands are determined; (*ii*) ensuring individual income levels corresponding to the full employment of their productive services or, more generally, determinable simultaneously with the demand price of the commodity and undergoing comparatively small changes as the quantity supplied changes. (The demand function is based here on the general equilibrium system, but any "partial equilibrium" notion of it rests on its general equilibrium counterpart to which we should refer in order to ascertain its properties and adequacy.)

The same analysis ensures a persistence of the demand function sufficient to correct accidental deviations from it through repetition over time. Such persistence will in fact be that of individual tastes and of the other data of the system.

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