BRENNER ON DISTRIBUTION

Gérard DUMÉNIL and Dominique LÉVY
MODEM-CNRS and CEPREMAP-CNRS

Version: May 10, 2005. We thank Mark Glick for his aid in the translation of this text into English.

Address all mail to: CEPREMAP-ENS, 48 bd Jourdan, 75014 Paris, France.
Tel: 33 1 43 13 62 62, Fax: 33 1 43 13 62 59
E-mail: dominique.levy@ens.fr, gerard.dumenil@u-paris10.fr
Web Site: http://www.jourdan.ens.fr/levy/

RÉSUMÉ

LA RÉPARTITION SELON BRENNER

Cette étude discute un aspect de l'*Economics of Global Turbulence* de Robert Brenner: la théorie sous-jacente de la répartition. Brenner veut démontrer que la baisse du taux de profit dans l'économie mondiale, entre la deuxième moitié des années 1960 et le début des années 1970, fut causée par la concurrence exercée par les secteurs manufacturiers japonais et allemand sur le secteur manufacturier des États-Unis, par le biais de la baisse des prix dans ce secteur. La généralisation de la baisse du taux de profit à toute l'économie mondiale repose sur l'hypothèse d'une hausse du salaire réel, consécutive à cette guerre concurrentielle. Dans son analyse historique et empirique, Brenner fait référence à l'incapacité des firmes à appliquer des taux de marge suffisants à leurs coûts, ce qui renvoie implicitement à une diminution de la part des profits (*markup*). Un premier problème est que la critique que fait Brenner des des théories de la pression excessive sur les profits (*profit squeeze*) est mal venue, puisque sa propre analyse implique une baisse de la part des profits. Ce qu'il y a de particulier dans sa vision, c'est que cet effet résulte de la concurrence, et non des poussées exercées par les travailleurs faisant pression sur les salaires ou la productivité du travail. Cette démonstration n'est pas convaincante empiriquement. Certes, la part des profits diminua depuis la Seconde Guerre mondiale, mais la décennie 1965-1973 de guerre concurrentielle, selon Brenner, n'a rien de singulier. Il est, de plus, impossible de faire abstraction de ce qui fut le facteur principal de la baisse du taux de profit: la baisse de la productivité du capital. La théorie implicite de la répartition de Brenner, où la concurrence détermine les taux de marge et de salaire réel, n'est autre que celle de Michael Kalecki. On montre que cette analyse ne peut pas être étendue à l'étude du long terme, que nous abordons dans une problématique classique et marxiste. Cette étude se termine par une présentation de notre propre vision de la détermination de la tendance séculaire du salaire réel, où se combinent la lutte des classes, les cadres institutionnels, et les circonstances économiques.

ABSTRACT

BRENNER ON DISTRIBUTION

This paper discusses the underlying theory of distribution contained in Robert Brenner's *Economic of Global Turbulence*. Brenner wants to prove that the decline of the profit rate in the world economy during the late 1960s and early 1970s was caused by the competition Japanese and German manufacturing industries exerted on US Manufacturing, which resulted in a decline of the relative price of Manufacturing. The generalisation of the fall of the profit rate to the entire world economy relies on the assumption that the real wage rose as a result of this competitive war. In his historical-empirical analysis, Brenner refers to the inability of firms to mark up adequately over costs, *i.e.*, implicitly to a decline of the share of profits. A first issue is that Brenner's criticism of profit-squeeze analysis is misplaced. His own analysis implies a decline of the profit share. The specificity of his line of argument is that the squeeze on profits followed from competition, not wage-earners pressures on wages or on labor productivity. This demonstration is empirically unconvincing. Though the share of profits in US Manufacturing declined since World War II, Brenner's decade of competitive warfare, 1965-1973, is not specific. In addition, it is impossible to abstract from the main factor in the fall of the profit rate, *viz* the decline of the productivity of capital. Brenner's implicit theory of distribution, in which competition determines the mark-up rate and the real wage, is in line with that of Michael Kalecki. This analysis is not compatible with the classical-Marxian analysis, that we judge more relevant. Last, we present our own view of the determination of the secular trend of real wages, combining class struggle, the institutional framework, and the general economic circumstances.

MOTS CLEFS : Baisse du taux de profit, répartition, markup, changement technique, économie mondiale, crise.
KEYWORDS : Falling profit rate, distribution, markup, technical change, world economy, crisis.
J.E.L. Nomenclature: D40,O3,O5.

Introduction

This paper discusses one important component of the analysis of the decline of the profit rate in the recent decades in Robert Brenner's *Economics of Global Turbulence* (BRENNER R. 1998). Our single focus in this paper is Brenner's implicit theory of distribution.

It must be emphasized from the outset that the present discussion does not question the central role given by Brenner to the profit rate in his investigation of the crisis which began in the 1970s. There is now a significant convergence among Marxists concerning the decline of the profit rate, diminished accumulation rates, and the slowdown of labor productivity — in the US as well in major capitalist countries. In combination with the reassertion of the power of financial capital within Neoliberalism and the threat of a major financial crisis, these developments have sparked new interest in Marxist economics and Marxism in general.

One can distinguish between two components in Brenner's approach to the decline of the profit rate. A first aspect, to which he devotes much attention, concerns competition within manufacturing industries among major capitalist countries. The second aspect is Brenner's analysis of distribution. A discussion of the model underlying Brenner's treatment of competition is presented in DUMÉNIL G., GLICK M., LÉVY D. 1999. We contend that Brenner's analysis of competition is based on an arbitrary assertion concerning the determination of prices, and an unconvincing argument concerning the extension of the fall of the profit rate to the entire economy. We will abstract here from these difficulties. The central point in this paper is that Brenner resurects, at least implicitly, a quite specific theory of wage determination, that of Michael Kalecki. The thesis is that the real wage or the wage share are functions of the "intensity" of competition among producers.

Why is the issue of distribution so crucial in Brenner's analysis? The answer is straightforward. *Price competition among firms within one industry can diminish the profit rate of this industry.* If Brenner's analysis stopped at this point, there would be no need to further the investigation. *However, this lower than "normal" price will benefit other agents, either firms within other industries or wage earners*, and Brenner is quite aware of this difficulty, which prohibits the direct extension of the decline of the profit rate to the entire economy. Brenner's way out is that the profit rate for the entire economy will decline, following a competitive warfare within one industry, if and only if wage-earners benefit to some extent from this diminished price. Thus, the real wage becomes a central variable in his demonstration. Outside of his theoretical framework of section II of chapter one, *i.e.*, in his historical-empirical investigation, the bulk of his study, Brenner does not consider the movements of the real wage. The central variable becomes the *mark-up rate*. It is because firms cannot mark up over costs that both the real wage and the wage share increase, and this is what explains the fall of the profit rate.

Section 1 first presents several of Brenner's references to the real wage and to the mark-up rate as sketched above. Then, we examine how he contrasts his interpretation with that of "supply-siders". Among supply-siders, Brenner criticizes economists explaining the decline of the profit rate by a *profit squeeze*[1], while he, himself, accounts for the falling

1. Brenner also uses the expression *wage squeeze*.

profit rate by the decline of the mark-up rate, *i.e.*, the rise of the wage share! The difference is that he does not see the cause of the rise of wages in the pressure exerted by workers, but in the competition among producers which contributes to diminish prices. Very little is said about those who emphasize the transformation of technical change, except to observe that capital productivity (in real terms) hardly declined for the entire economy. Although no sophisticated empirical investigation is undertaken in the present paper, the first section finally examines the core of Brenner's demonstration: the empirical profile of the mark-up rate within US Manufacturing since World War II. It turns out that the decline of the productivity of capital explains to a significantly larger extent the decline of the profit rate than the share of profits.

The discussion in section 2 is strictly theoretical. We compare two frameworks: (1) that of Kalecki-Brenner, in which the intensity of competition fixes the mark-up rate and the wage rate; (2) the classical-Marxian analysis, in which the real wage is determined "exogenously", *i.e.*, by a variety of circumstances, political, social, and economic. The Kaleckian framework assumes a given productive capacity (larger than demand levels), *i.e.*, it is a short-term model. We show in the appendix why we do not accept this model, which is not compatible with the consideration of investment and capital accumulation, and profit *rate* maximizing, as in the classical-Marxian model. It can certainly not be used in an historical-empirical investigation such as that of Brenner.

In section 3, before restating our own view of wage determination and of the profit share, we recall, for comparison, Marx's analysis in *Capital*. Marxists, in general, emphasize the role of workers' wage pressure on their employers. To this basic mechanism, one must add the importance of the institutional framework and of a number of other economic mechanisms. Obviously, Brenner is aware of the effects of workers' struggles for higher wages, that he discusses in his study, and of the importance of other mechanisms. But he fails to reconcile these two theories of distribution. Concerning, more specifically, the historical profile of the profit share in the whole US economy — approximately constant, as is well known — we briefly recall the first results obtained in our theoretical work on these issues.

1 - The real wage and the share of wages: their role in the falling profit rate

Section 1.1 recalls the role conferred on the rise of the real wage in Brenner's analysis and compares it to his reference to markup in his historical-empirical analysis. Section 1.2 discusses Brenner's accounts of other approaches (supply-siders). Section 1.3 restates this analyses using a simple formalism. Last, section 1.4 questions the potential explanatory power of Brenner's analysis.

1.1 Brenner and the falling profit rate

This section compares Brenner's analysis in his theoretical section to that in his historical-empirical investigation. It shows how Brenner moves implicitly from the notion of a rise of the real wage, to that of a decline of the mark-up rate and, thus, a rise of the wage share. (We understand Brenner's *markup* "over costs" in the usual sense of a markup on wages, *i.e.*, as the ratio of the price of the output to wages.)

1.1.1 Competition and wages in Brenner's theoretical framework

A superficial reading of Brenner's analysis might suggest that he provides an explanation of the falling profit rate under the assumption of *a constant real wage rate*. This assumption is sometimes made, for example at the beginning of section II of chapter one: "[...] in the assumption that the real wage remains constant" (p. 24). This is, however, not the case. After having described the fall of the profit in one industry, resulting from competitive pressures, Brenner resorts to an increase in the real wage in order to derive a downward trend of the profit rate in the "whole economy" from the fall in the price of a single industry:

> A final, major issue needs to be clarified before the relevance of the foregoing mechanisms for the problem of explaining economic crises can begin to be examined. This issue is the impact on profitability *in the economy as a whole* of the reduced price that determined the fall of profitability in the line affected by over-capacity and over-production. We know that, to the extent that the reduced price in the line leads, as above, to a reduction of profitability in that line, the same reduced price will provide an equivalent increase in income to others in the economy who purchase those goods as their inputs.[2]

This is where Brenner's introduces his reference to wages:

> In any case, if labor is able to get any of the gains from the decreases in prices [*i.e., if the real wage rises*] then the aforementioned process [...] will indeed result in a fall in profitability for the economy as a whole.[3]

Brenner's argument is summarized in diagram 1. A competitive war within one industry (Manufacturing, for the major capitalist countries) leads to a decline in the price of the output of this industry. A rise of the real wage results, that causes a decline of the profit rate for the average entire economy (the aggregate of Manufacturing and non-Manufacturing). To this first chain, one can add that the capacity utilization rate within Manufacturing is below normal, a disequilibrium situation which is detrimental to the profit rate. This connection plays a secondary role in Brenner's analysis, if any. The doted line delineates Brenner's most explicit framework.

To sum up, Brenner's line of argument is not that competition and the rise of the real wage contribute independently to the decline of the profit rate, but that competition is the cause of the rise of the real wage, which, in turn, explains the decline of the profit rate. He understands that competition *per se*, independently of real wages, cannot explain a downward trend of the profit rate since low prices in one industry raise profit rates in other industries. It is only when diminished prices increase the purchasing power of workers that this movement can reduce the profit rate of the entire economy.[4]

---

2. BRENNER R. 1998, p. 28-29.
3. BRENNER R. 1998, p. 29.
4. In DUMÉNIL G., GLICK M., LÉVY D. 1999, we contend that (1) Brenner's demonstration would

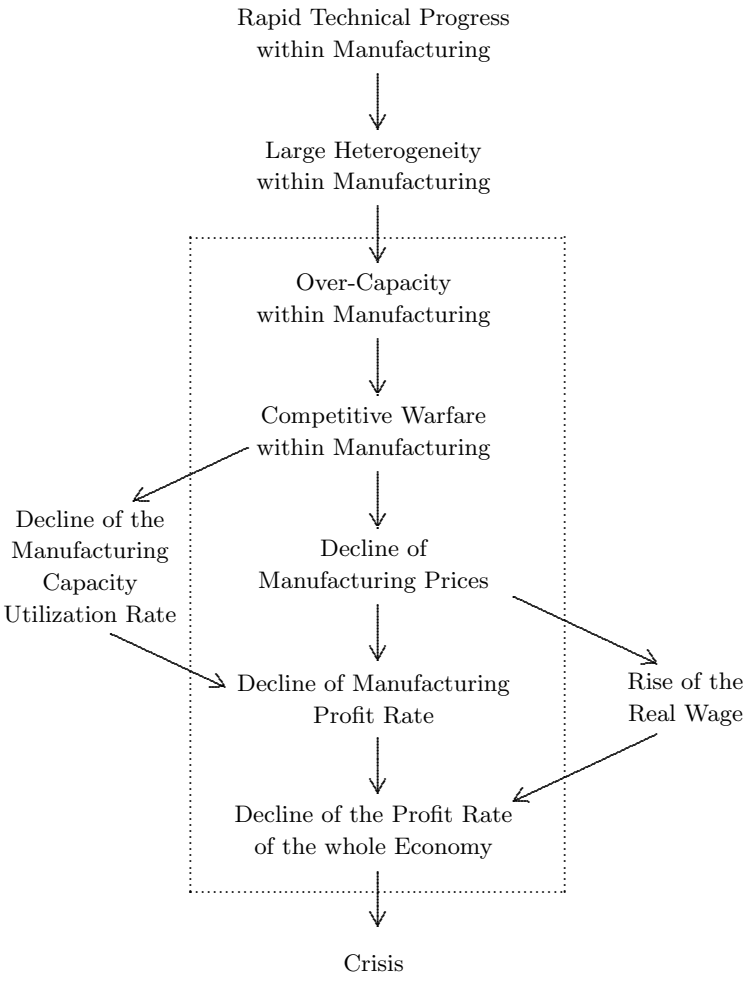


Diagram 1

1.1.2 Firms' inability to mark up in Brenner's historical-empirical analysis

Obviously, the nominal wage cannot be assumed to be constant during the last decades, in particular during the 1970s and early 1980s, a period of high inflation. It is not possible to compare a constant nominal wage and declining prices. Consequently, Brenner refers to the *markup* in his historical-empirical investigation. Instead of diminishing their prices, manufacturing firms are unable to mark up costs adequately: "Not the growth of costs in themselves, then, but the inability of US manufacturers to sufficiently mark up over costs..." (p. 103). But this analysis also applies, though to a lesser extent, to firms within non-Manufacturing: "[...] the private economy outside of manufacturing, which was largely immune from international competition, experienced a much more limited fall

---

be unconclusive without the reference to the rise of the real wage, and (2) his line of argument is wrong.

in profitability because its firms could raise prices in line with much faster growing costs almost as easily as before" (p. 108). Thus, Brenner contends that, independently of the competitive war raging among the major capitalist countries, firms would have been able to pass on the rise in their nominal costs — in particular a rising cost of labor — to their customers by raising prices. Unfortunately, competition prevented them from doing so, causing a decline in the manufacturing profit rate and, finally, a decline of the profit rate in the whole economy.

This analysis is in concert with Kalecki's theory of distribution. In his theory, workers can obtain rises of their nominal wage, but they cannot impact on their real wage, *which is determined by the mark-up rate of firms*, itself determined by the degree of competition prevailing in the economy.

This analysis is puzzling. Pushing this theory to the extreme, one could contend that workers should only fight against monopolies and oligopolies, or to "encourage" any development which could stimulate the rise of labor productivity, in order to improve their purchasing power (see equation 5 in box 1).

One question is whether Brenner's two alternative approaches to distribution are *equivalent*. In the standard framework, in which the markup over costs must be understood as markup over labor costs, the references to the real wage rate or to the mark-up rate are *equivalent*. With a given technology (specifically a given value of labor productivity), the mark-up rate or the wage rate contain the same information (equation 5). Note also that it is possible to refer alternatively to the mark-up rate, the share of wages, or the share of profits (equation 4).

1.2 "Supply-side explanations": profit squeeze and technical change

Brenner contrasts his analysis and what he labels the "supply-side explanation". Although we are never cited explicitly, we sense we are part of this family.

In section I of chapter one, entitled *Supply-Side Explanations: A Critique*, Brenner first attacks a subset of these analyses ("the Full Employment Profit Squeeze Theory", p. 13). The basic idea is that accumulation and full employment pushes wages upward.[5] Later in his study, Brenner returns to this same group in significantly different terms:

> In fact, advocates of the supply-side approach to the long downturn in the US have tended to attribute the squeeze on profitability much more to a decline in labor productivity growth — the onset of a 'productivity crisis' — than to an increase in real wage growth. In the words of Jeffrey Sachs, a 'rising labour share came about because productivity growth slowed without a commensurate slowdown in real wages'.[6]

Among heterodox social scientists, Brenner discusses the *Social Structure of Accumulation* and the French *Regulation School*. The Social Structure of Accumulation (as well as the Regulation School according to Brenner) explains the diminished growth of labor productivity by workers' resistance on the shopfloor.

---

5. More specifically, w^R rises faster than P_L, so that π declines (equation 2)
6. BRENNER R. 1998, p. 97-98.

Brenner classifies a second group as "fundamentalist Marxists". Fundamentalist Marxists emphasize the "increasing mechanization, manifested in rising organic composition of capital (capital-labor ratio)" (p. 11) assuming a constant real wage. This fundamentalist explanation ends up, according to Brenner, postulating an overall productivity *decline* for "both labor and inputs" in the aggregate (p. 11), *i.e.*, a fall of "total factor productivity".

Two remarks should be made. First, Brenner dismisses any analysis which locates the origin of the declining profit rate in the degradation of the conditions of technical change, independently of workers resistance, under the assumption of a constant share of wages. Second, it is striking that Brenner fails to recall in this survey the role that he confers on the rise of the real wage. If Brenner is not a profit-squeezer, it is only in the sense that the rise of wages or the decline of the profit share — which causes the fall of the profit rate in his analysis — is not due to the pressure of workers, but to the competitive warfare of capitalists. We would use a different terminology. There are two basic categories of profit-squeezers: (1) those who emphasize the pressure of workers, and (2) those who insist on competition. The progress of the purchasing power of workers is the result of their struggle in the first case, while it is given out by capitalists in the second case.

1.3 Four frameworks of analysis within a simple formalism

A simple formalism will help clarifying the distinction between these various analyses (box 1).[7] It is easy to delineate four alternative frameworks:

1. *Competition profit-squeeze (Brenner).* Brenner's theoretical framework abstracts from technical change. Neither the productivity of labor or that of capital are at issue.[8] They can be considered constant or changing exogenously, but the effects of these variations are assumed not to matter really. The two variants of Brenner's analysis can be summarized as follows:

(a) Consider first section II of chapter one. The real wage increases, under the assumption of a constant nominal wage, because of the fall of prices (equation 1). This results from intense competition in one industry. Consequently, the share of profits declines (equation 2), and the profit rate falls (equation 3).

(b) Consider now Brenner's historical-empirical analysis. Some capitalists cannot mark up prices over costs as they would but for the competitive pressures. This is equivalent to saying that the share of profits diminishes (equation 4), pulling the profit rate downward (equation 3). From equation 5, it follows that the real wage must rise.

2. *Workers profit-squeeze.* The profit rate declines because the share of profits declines under workers' pressure (equation 3). Two versions are possible:

(a) The growth rate of the real wage increases while the growth rate of labor productivity is constant (equation 2). In this instance, one can speak of a *straightforward squeeze* by wages. The rise of the real wage results from the pressure workers put on employers for higher wages.

---

7. We are here within what Brenner calls the "whole economy".

8. Brenner is aware of the importance of the fall of the productivity of capital (measured in nominal terms). (Brenner usually denotes this variable as the output/capital ratio, and only calls *productivity of capital* the ratio of the two aggregates in constant dollars.) See section 1.4 below.

1 - A simple formalism

The notation is as follows:

Y, Y^R:		Net National Product (NNP) in current and constant dollars
p	:	Deflator of the NNP ($p = Y/Y^R$)
L	:	Number of hours worked
K	:	Capital stock in current dollars
w	:	Hourly nominal wage (total compensation of labor per hour)
w^R	:	Real wage rate (like w, but in constant dollars, $w^R = w/p$)
r	:	Profit rate ($r = \text{profits/capital} = (Y - wL)/K$)
π	:	Share of profits ($\pi = (Y - wL)/Y$)
ω	:	Share of wages ($\omega = wL/Y$)
μ	:	Mark-up rate ($\mu = Y/wL$)
P_K	:	Productivity of capital ($P_K = Y/K$)
P_L	:	Productivity of labor ($P_L = Y^R/L$)

The text refers to the following relations:

$$w^R = \frac{w}{p} \tag{1}$$

$$\pi = 1 - \frac{w^R}{P_L} \tag{2}$$

$$r = P_K\, \pi \tag{3}$$

$$\omega = 1 - \pi = \frac{1}{\mu} \quad or \quad \pi = 1 - \omega = 1 - \frac{1}{\mu} \tag{4}$$

$$w^R = \frac{1}{\mu} P_L = \omega P_L \tag{5}$$

(b) The growth rate of labor productivity declines while the growth rate of the real wage is constant (equation 2). The growth rate of labor productivity diminishes in relation to the attitude of the workers on the shopfloor.

3. *Marxist fundamentalism.* The profit rate declines — with the share of profits constant or even rising — because the overall productivity of labor and capital declines (equations 2 and 3), even if the real wage remains constant. Actually, a downward trend of the productivity of capital is sufficient. Independently of the precise assumptions made concerning technical change, fundamentalists want to show that the profit rate declines independently of the rise of the real wage.[9]

4. *Our view.* Both the real wage and the productivity of labor rise, and the share of profits is constant (equation 2). The profit rate declines because the productivity of capital declines (equation 3).[10] We call such a trajectory, a *trajectory à la Marx*, since it displays the features described by Marx at the beginning of Volume III of *Capital*.[11] Brenner objects

9. The fundamentalists know that the real wage grows, but this only adds to the decline of the profit rate.

10. The basic mechanism is an unfavorable transformation of technical change (DUMÉNIL G., LÉVY D. 1993, Ch. 15), the "exhaustion of a wave of technical progress" (for example, p. 354). In more recent studies, we refer to a deterioration of the conditions of innovation (DUMÉNIL G., LÉVY D. 1995, 1996, and 1998). See section 3.2 of the present study.

11. The inclusion of a rising wage rate among the features of a trajectory *à la Marx* is justified in section 3.1 below.

to this analysis on the grounds that the productivity of capital, when both the NNP and the capital stock are expressed in constant dollars, does not decline much during the 1970s for the total economy. This objection will be discussed in another study (for Manufacturing, see section 1.4).

It is interesting to examine the differences and common points between these four groups:

1. In a well-known study, Nobuo Okishio showed that, under the assumption of a constant real wage, capitalists which introduce new techniques improving individual profit rates at prevailing prices, contribute to the rise of the profit rate in the entire economy when these techniques are used by all producers (OKISHIO N. 1961). Only the third group, Brenner's *fundamentalist Marxists*, attempts to describe a mechanism in which the profit rate declines under the assumption of a constant real wage. One option is to abandon the assumption that capitalists introduce new techniques whose profit rate is larger than the prevailing rate.[12]

2. Brenner's analysis can be contrasted with the three other groups concerning the explanation of the tendency of the real wage to rise. As already indicated, Brenner explains this tendency by competition, while others explain it by the pressure of workers.

3. Setting aside the cause of the rise of the real wage, the analyses of Brenner and of the straightforward profit-squeezers unfold in the same manner: The rise of the real wage explains the fall of the profit rate by a decline of the profit share.

1.4 Factual relevance?

The above analysis suggests a direct empirical test of Brenner's analysis: the examination of the mark-up rate or share of profits in Manufacturing in the US. If Brenner is right, this ratio should decline dramatically between 1965 and 1973, the period in which the competitive war raged according to Brenner. Figure 1 displays a measure of this ratio and of the productivity of capital which is also crucial in this discussion (equation 3).[13]

Brenner's two major remarks concerning these profiles are the following (pp. 101-102):

1. Between 1965 and 1973, the declines of the share of profits and of the productivity of capital contribute equally to the fall of the profit rate.

2. The decline of the productivity of capital, when both output and capital are measured in current dollars, is not the expression of technical change, but of the decline of the price of Manufacturing, in relation to international competition.

We disagree with these two statements, even if the first one is not wrong, but only misleading. Several observations must be made:

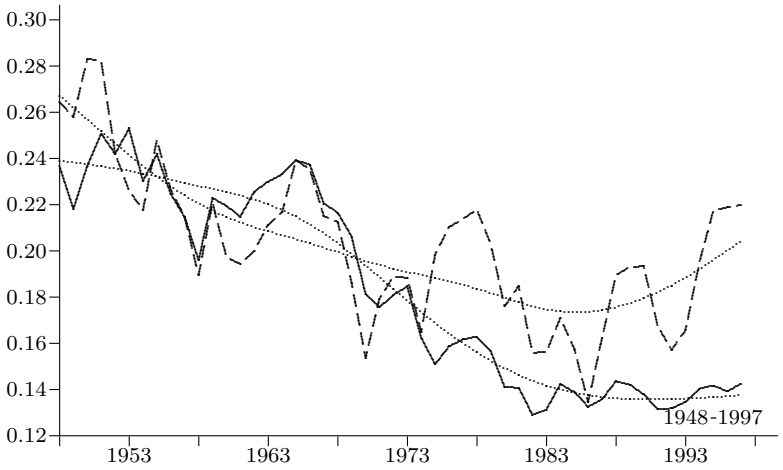
1. *We begin with the comparative effects of the share of profits and of the productivity of capital.*

---

12. A well-known example is the analysis of Anwar Shaikh (1980). Competition is central as in Brenner, but the mechanism is thoroughly different: Capitalists introduce new techniques which increase their profit *margins*, but diminish their profit *rate*, to be better equipped within competition.

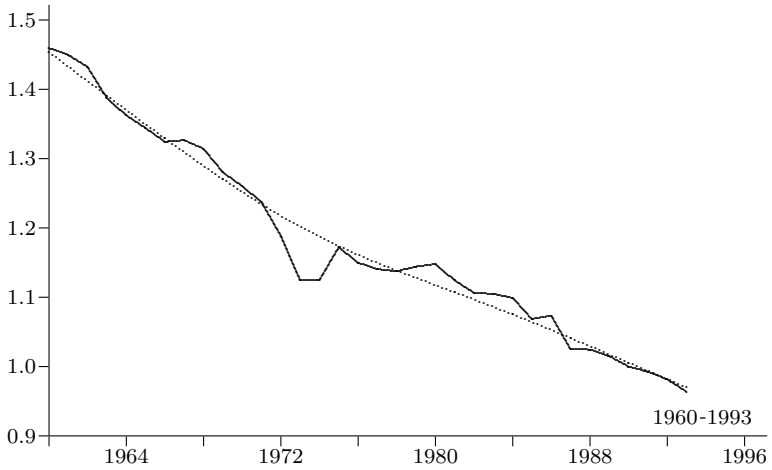
13. There are a few differences between Brenner's computations and ours (see DUMÉNIL G., GLICK M., LÉVY D. 1999).

Figure 1 US Manufacturing: Share of profits (– –) and productivity of capital (——), 1948-1996



The productivity of capital has been multiplied by a constant to set it at the same level as the share of profits in 1965. The trends (·····) have been computed using the Hodrick-Prescott filter.

Figure 2 US: The relative price of Manufacturing, 1960-1992



Source: OECD, Economic Outlook.

(a) There is no specific problem between 1965 and 1973. Between 1965 and 1970[14], the share of profits diminishes from 0.239 to 0.154 (a decline of 36%). Similar or larger falls are observed between 1950 and 1958 (a decline of 33%), or between 1978 and 1986 (a decline of 38%).

(b) But this is not how this movement should be interpreted. A large fraction of the 1965 -1970 decline must be viewed as a correction for the sharp rise between 1958 and 1965 (from 0.190 to 0.239, a rise of 26%). The problem in the explanation of the declining profit rate is not one of short-term fluctuations, but one of historical trends (see the doted lines in the figure). Our interpretation ferrets out of this plot fluctuations around a slowly declining trend, up to the last decade, whose slope diminishes steadily. Between 1965 and 1973, the trend diminished from 0.205 to 0.191, a decline of 7%, *i.e.*, a small fraction of the overall fall from 0.267 in 1948 to 0.173 in 1985 (the year in which the profit rate reached its minimum), a decline of 35%.

(c) The largest effect can be attributed to the productivity of capital, also plotted on the same figure. For Brenner's period of acute competition, 1965-1973, the trend of the productivity of capital declined by 17%, to be compared with 7% for the trend of the profit share. Considering the entire period of decline of the profit rate, from 1965 to 1985, the trend of the productivity of capital fell by 36%, to be compared with 15% for the wage share.

2. *We consider now the factors that accounts for the decline in the productivity of capital.*

(a) It is true, as Brenner contends, that the productivity of capital declined for two reasons: (1) the downward trend of the productivity of capital with both output and the capital stock measured in constant dollars, and (2) the decline of the relative price of the output of Manufacturing. The decline of capital productivity in constant dollars is directly an expression of technical change.[15] We do not agree with Brenner the overall downward trend of the price of manufacturing output should be imputed to competition. Quite the contrary, we believe that this movement basically reflects the transformations of technology (and possibly the movement of wages) — around which one can observe fluctuations.

(b) Without entering seriously into this discussion, one can examine figure 2, which displays the relative price of Manufacturing (in comparison to the price of GNP). As is well known, we observe a steady downward trend which mirrors the comparative gains in efficiency in the production of manufacturing goods, *not international competition*. This movement is observed over the entire postwar period, with little deviations. One can observe the Brenner effect in the early 1970s. Whether it was due to international competition remains to be investigated, but we have no *a priori objections* to this interpretation.[16] Critically, however, this is not the explanation of the downward trend of the profit rate of US Manufacturing!

---

14. The profit rate in Manufacturing was lower in 1970 than in 1973.
15. We reject an explanation based on a downward trend of the capacity utilization rate.
16. This was the thesis defended in DUMÉNIL G., GLICK M., RANGEL J. 1984 and 1985. International competition was said to explain the fluctuations of profit rates around a declining world trend *à la Marx*, but only fluctuations.

2 - Does the intensity of competition determine distribution?

This second part addresses, at a more theoretical level of analysis, the Kalecki-Brenner theory of wage determination. This discussion raises a number of more difficult issues concerning the comparison between the *short-term partial* Kaleckian-Keynesian framework, and the classical-Marxian *long-term general* analysis of competition and of prices of production (section 2.1). Section 2.2 shows that the relationship between markup and demand can be treated in two thoroughly distinct manners, of which only one is compatible with the classical-Marxian analysis which we judge to be relevant.

The conclusion is, to us, straightforward and intuitive: *The intensity of competition does not determine the share of profits and the real wage.* This statement does not rule out the reference to mark-up procedures.

2.1 The irrelevance of the Kaleckian theory of distribution

With a given technology, if the markup is determined by competition, competition also fixes the real wage. If the mark-up rate declines, the real wage rises (equation 5). This is precisely Brenner's point. (Recall that the real wage also increases with labor productivity.) This analysis contrasts with the classical-Marxian notion that wages are determined by other circumstances.

These diverging views concerning distribution are only one component of more general differences between the Kaleckian-Keynesian and the classical-Marxian frameworks. One central element is the degree to which productive capacity is used in the long run:

1. In the first framework, output is determined by demand, even in the long term. *A priori*, the level of activity is disconnected from the existing productive capacity (or maximum possible output).

2. For classical economists the productive capacity is used "normally", *i.e.*, averaging over fluctuations due to usual gravitation or to business cycles.[17] In other words, mechanisms exist which tend to adjust productive capacity to demand in the long run.

It is difficult to discuss these issues outside of the context of a model (see the appendix). We use the framework of *monopolistic competition*. Consider first a given industry (partial analysis), in which several firms, assumed to be identical, produce and sell the same commodity. The total demand in the industry may depend to a limited extent on the average price of the industry, though not much, but relative prices are mostly important in the sharing of demand among competitors within the industry. If all prices were equal, demand would be shared equally. Firms that sell at a price larger than the average price sell less, whereas firms selling below the average price sell more.[18] The degree to which

17. The capacity utilization rate for US industry gravitates around 80-85% — *above* during periods of overheating and *below* during recessions.
18. All demand does not go to the firm with the lowest price. This property is usually referred to through the notion of *product differenciation*. It actually relates to a variety of parameters: products may be judged different by customers (such as cars of different automakers), there may be geographical limitations, various networks of services...

firms that sell at prices above the average are sanctionned, or to which firms that sell below the average are favored, accounts for an important feature of competition.[19]

The purpose of this investigation is to make explicit the difference between the two frameworks of analysis concerning, notably, profit and profit-rate maximizing. In the model of monopolistic competition, a firm maximizes its profits under the constraint of demand. This determines simultaneously its optimal output and its optimal price. (In this simple model, all firms within an industry are identical, therefore their decisions are also identical.) Since the productive capacity of each firm is given, it is also necessary to compare the optimal output with this productive capacity. This is where investments by capitalists are at issue, and this marks the limits of the Kaleckian model. In their decision to invest, capitalists maximize their profits on their capital, in the classical-Marxian fashion, *i.e.*, allocate their capital among industries and firms in the most profitable manner. In this situation, the profit rates on their various investments are equal, and the profit rates in the various firms that they finance are at their maximum. The problem is that maximizing profits does not coincide with maximizing profit rates. Actually, if capitalists behave as profit rate maximizers, they do not allocate to each firm an amount of capital sufficient to allow for the production which maximizes profits! In other words, the models of monopolistic competition in which firms maximize their profits is not compatible with classical models in which capitalists maximize their profit rates, in which we see a crucial feature of capitalism. Since we reject the model, we also dismiss its consequences concerning distribution.

2.2 Markup and competition: two distinct views

In this analysis, the problem *is not* that competition is assumed to have an impact on the markup, a mechanism that we used in some of our models and denote as *flexible markup*, but the way this dependence is expressed (DUMÉNIL G., LÉVY D. 1993, p. 166). In this model, firms mark up over costs, but also adapt their mark-up rate depending on the demand they face. This model is compatible with the classical-Marxian analysis of competion, in sharp contrast with the Kaleckian framework (see the appendix). The formalism used is sketched in box 2.

2 - Flexible markup

The price of a commodity in period t is determined by a markup rate μ_t: $p_t = \mu(lw_t)$. If supply differs from demand ($S_t \neq D_t$), a firm adjusts its markup. For example, if supply is larger than demand (a situation of overproduction), it tends to diminish its mark-up rate. This can be represented by an equation such as:

$$\mu_{t+1} = \mu_t \left(1 - \beta \frac{S_t - D_t}{S_t}\right)$$

In this equation, β is a reaction coefficient which models the degree of the reaction of the firm to the disequilibrium it observes on the market. The procedure is one of progressive adjustment (a firm does not compute and adopts market-clearing prices).

19. The response of demand to deviations of prices is modeled by a parameter, denoted δ in the appendix.

There are common aspects within the two analyses, since competition impacts the markups in both instances; there is, however, also a basic difference. In the Kaclecki-Brenner model, the intensity of competition determines the *level* of the mark-up rate. In this case, competition determines the real wage:

$$\text{Competition} \rightarrow \text{Mark-up rate} \rightarrow \text{Real wage}$$

In the *flexible mark-up* model, market disequilibrium impacts on the *variation* of the mark-up rate. In this case, the real wage can be assumed exogenous, *i.e.*, determined by other mechanisms, and competition ensures the convergence of the mark-up rate, μ_t, toward a level compatible with this real wage. In Marx's terminology, competition only acts as an "operating mechanism" (*cf.* section 3). The above difference between *level* and *variation* is, therefore, crucial concerning the analysis of distribution.

3 - The real wage and the wage share in the long run

The issue of the historical movements of real wages and of the profit share (approximately constant in the US for the total economy) is complex. Obviously, the rejection of the intensity of competition as an explanatory factor, does not solve the problem. Section 3.1 recalls Marx's analysis, and section 3.2 sketches a few guidelines.

3.1 Marx on real wages

The central thesis in Marx's work and among Marxists is that wages will only increase under the social and political pressure of workers, taking account of economic and social circumstances. This fight over purchasing power is one aspect of *class struggle*. Marx's view was that workers must fight for better wages and working conditions. To what extent can workers cause an historical upward trend of real wages? It is very difficult to outline Marx's thesis in this respect.

When Marx began his investigation of the economics of capitalism, he first adopted Engels' thesis, the so-called iron law of wages: "The natural price of labor is no other than the wage minimum" (MARX K. 1847, p. 44). The same thesis was stated in the *Communist Manifesto*. Engels claimed that he discovered this law, that Marx and himself later rejected.[20] But this issue is very ambiguous: Does the reference to the minimum wage establish a tendency which would prevail within capitalism in the absence of worker's resistance and conquests? Does the question itself have a meaning?

20. "The thesis that the "natural", *i.e.*, normal, price of labour power coincides with the wage minimum, *i.e.*, with the equivalent in value of the means of subsistence absolutely indispensable for the life and procreation of the worker, was first put forward by me in *Sketches for a Critique of Political Economy* (*Deutsch-Französiche Jahrbücher [Franco-German Annuals]*, Paris, 1844) and in *The Condition of the Working Class in England in 1844*. As seen here, Marx at that time accepted the thesis. Lassalle took it over from both of us. [...] In *Capital*, Marx has put the above thesis right (Section on the Buying and Selling of Labour Power) and also (Chapter 25: *The General Law of Capitalist Accumulation*).." [*Note by F. Engels to the German edition, 1885*]" (MARX K. 1847, pp. 44-45).

Reading Marx's later work, it is clear that he actually accepted the idea of an upward historical trend of real wages. However, he always remained reluctant to state this thesis explicitly. Consider the two following examples:

1. In the famous chapter 25 of Volume I of *Capital*, from which generations of Marxists derived the *law of the absolute immiseration of workers*, Marx was not able to conclude concerning the historical movement of wages. Finally, he set aside the problem of the real wage in the formulation of his thesis concerning the worsening of the *situation* of workers, because he could not conclude: "It follows therefore that in proportion as capital accumulates, the situation of the worker, be his payment high or low, must grow worse" (MARX K. 1867, p. 799).

2. In his analysis of the falling profit rate at the beginning of chapter 13 of Volume III of *Capital*, Marx assumed a constant rate of exploitation. Abstracting from problems of measurements in value or price terms, this is equivalent to assuming a constant share of profits. Since Marx associated the decline of the profit rate with a rising labor productivity, *the real wage rate must rise* in his analysis.[21] Again, Marx deliberately ignored the movement of the real wage: "We entirely leave aside here the fact that the same amount of value represents a progressively rising mass of use-values and satisfactions, with the progress of capitalist production..." (MARX K. 1894, p. 325).

Marx was more explicit in his analysis of the movements of real wages along the phases of the business cycle. This is one of the topics of chapter 25 of Volume I where Marx studied the consequences of accumulation on employment (the recreation of the reserve army during crises) and the situation of workers. This issue is also discussed in chapter 15 of Volume III, in the treatment of the *overaccumulation of capital* (MARX K. 1894, p. 359). Accumulation pushes employment to the limits of the available population, wages tend to rise, encroaching on profits and leading to crisis. But these analyses of the effects of business fluctuations do not solve the issue of the secular trend of the wage rate.

3.2 Class struggles, institutional frameworks, and economic variables

A well-known feature of distribution in the US is that the profit share remains approximately constant.[22] Figure 3 plots the share of profits in the US since the beginning of the century. The trend is fundamentally horizontal, despite the numerous deviations reflecting business-cycle fluctuations. This observation is well in line with Marx's reference to a constant rate of surplus value in his analysis of the falling profit rate. This constancy is difficult to explain.

In several papers (in particular in DUMÉNIL G., LÉVY D. 1995), we presented a model of technical change, which can be denoted as a *classical-Marxian evolutionary model*.[23] Innovation is random, and firms select those which improve their profit rate. This model allows for the reproduction of the secular movement of the major variables in the US,

---

21. *Cf.* equations 4 and 5. With π constant, w^R rises in proportion to P_L.
22. This analysis is only valid for the US. The situation is more complex in Europe or Japan (DUMÉNIL G., LÉVY D. 1998).
23. This is how Duncan Foley named the model we presented a few years ago in various papers (FOLEY D. 1998).

Figure 3 US: The share of profits in the private economy, 1900-1996

notably the profit rate. But this model can also contribute to the theoretical analysis of trajectories *à la Marx*. A dynamic model can be derived from a deterministic approximation of this stochastic model. Under some assumptions, it possesses stable asymptotic trajectories which reproduce the features of a trajectory *à la Marx*. A falling profit rate is associated with a constant profit or wage share. The share of profits is determined simultaneously by the conditions of innovation and the rules governing the movements of the real wage.

Concerning the movement of wages, we follow Marx the traditional Marxist emphasis on class struggle in the determination of the long-term movements of the real wage. The two variables, the nominal wage and the general level of prices, mediate the confrontation between workers and employers. When prices were flexible downward during recessions, nominal wages were also reduced in similar proportions or even more. Any short-term improvement, as in a period of overaccumulation, must be consolidated by the resistance of workers to later declines and to inflation.

It is evident that the movement of wages is influenced by the institutional environment in which the confrontation among workers and employers occurs. For example, the Keynesian institutions of the post-World-War-II years were crucial in the upward trend of the real wage.

The movement of wages is also conditioned by the evolution of a number of economic variables. A well-known example is provided by Kaldor's model: (1) Rapid accumulation stimulates the rise of wages, and conversely when accumulation slows down (as a result of the confrontation of employment and of an exogenous growth rate of the labor force): (2) The movement of wages impacts on the profit rate; (3) The value of the profit rate influences the rate of accumulation. Thus, a wage rate and a profit rate are determined which guarantee an appropriate rate of accumulation.[24]

24. It is well-known that Goodwin's model elaborates on a similar mechanism, and produces accumulation cycles.

Contrary to Kaldor, we assume a largely exogenous real wage rate (determined by other mechanisms), and a largely endogenous labor force. In the long run, the available labor force is, to a large extent, adjusted to the needs of accumulation, *via* the control of immigration, of the age of retirement, of women involvement, etc.

The profile of the real wage expresses the constant struggle of workers for higher wages. However, a feedback effect of the profit rate on the growth rate of wages is apparent (DUMÉNIL G., LÉVY D. 1993). The decline of the profit rate and its low levels create conditions unfavorable to the rise of wages. This is how we explained, in particular, the very slow growth of wages since the 1970s. With the slowdown of accumulation, the occurrence of several important recessions (notably 1970, 1974, and 1982), the rise of unemployment, the development of inflation, and, finally, the comeback of finance capital to power, workers were defeated and forced to compromise with employers to secure their employment.

We do not mean that Brenner disagrees with this analysis of the long-term dynamics of wages. The effect of workers' struggles and even the impact of the decline of the profit rate on the movement of wages are explicit in his analysis. Thus, one may wonder why Brenner put so much emphasis on a competitive mechanism, which we deem — both theoretically and empirically — irrelevant.

Appendix: Kalecki's theory of distribution and classical long-term analysis

The *simplest* framework in which the Kaleckian analysis of distribution can be expressed considers an average technology combining a stock of fixed capital and only labor as circulating capital. In the short run, fixed capital is given. With Y^M denoting the maximum output, the capacity utilization rate can be defined as $u = Y/Y^M$. It can reach any value below 1. l units of labor are required to produce one unit of output. Thus, the productivity of labor is $P_L = 1/l$, and the labor cost is wl. With μ denoting the mark-up rate, the price is $p = \mu(wl)$. From equation 1 for the real wage, one can derive equation 5.

We use the following additional notation:

i	:	Index of the firm
n	:	Number of firms in the industry
p^i	:	Price of firm i
$\overline{p}$	:	Average price of the industry
$D(\overline{p})$	:	Demand function for the entire industry
$d(p^i)$	:	Demand function for firm i

The demand function to firm i can be written[25]:

$$d(p^i) = \frac{D(\overline{p})}{n}\left(1 - \delta\frac{p^i - \overline{p}}{\overline{p}}\right) \quad for \quad i = 1, 2, \cdots, n$$

Parameter δ measures the response of demand to deviations of individual prices from the average of the industry. If all prices are equal, *i.e.*, if $p^i = \overline{p}\ \forall i$, then $\frac{p^i - \overline{p}}{\overline{p}} = 0$ and $d(p^i) = \frac{D(\overline{p})}{n}$: total demand is shared equally among firms. If $p^i > \overline{p}$, then $d(p^i) < \frac{D(\overline{p})}{n}$ and conversely.

We have no objection to this simple formalism. Only the following step is problematic. Firms are supposed to maximize their *profits*, Π^i, with $\Pi^i = Y^i(p^i - lw)$ and $Y^i = d(p^i)$. For a given average price in the industry, maximum profits are obtained in each firm for an optimal output, Y^{i*}, and an optimal price:

$$p^{i*} = \frac{1}{2}\left(wl + \frac{1+\delta}{\delta}\overline{p}\right)$$

The industry equilibrium under monopolistic competition prevails when all prices, p^{i*}, are equal, *i.e.*, for $\overline{p} = \frac{\delta}{\delta - 1}(wl)$. This yields:

$$\mu = \frac{\delta}{\delta - 1} \quad and \quad w^R = \frac{1}{l}\frac{\delta - 1}{\delta}$$

This means that, if the intensity of competition increases (if $\delta \nearrow$), then the mark-up rate diminishes and the real wage rises.

The above computation is only valid if optimal output is smaller than productive capacity. This assumption cannot be made in a model in which the decision to invest

25. This simple function abstracts from stochastic fluctuations.

is considered, *i.e.*, in a long-term model. One cannot assume that the decision to invest endows the firm with a productive capacity larger than expected demand. In a classical-Marxian framework, capitalists allocate their capital among industries and firms. They maximize their profits for a given total capital, *i.e.*, they maximize their profit rate. Two properties follow: (1) The profit rates on their various investments are equalized; (2) Each firm maximizes its *profit rate*.

The above profit maximization does not maximize the profit rate of the firm. Diagram 2 describes the profile of total profits, *i.e.*, short-term profits minus fixed costs and compares the two viewpoints, that of profit maximizing and that of profit rate maximizing. The maximum profit rate obtains for Y^M. This output is smaller than that suggested by profit maximizing ($Y^M < Y^*$), and the firm will fully use its capacity. Thus, if capitalists maximize their profit rates, they will never allocate to the firms enough capital to reach their short-term profit maximizing optimum. This result is intuitive: It means that it is not profitable for capitalists to invest additional capital to only slightly increase total profits (as shown by the declining slope of the curve before the maximum), while they could create a new firm or invest in another industry.

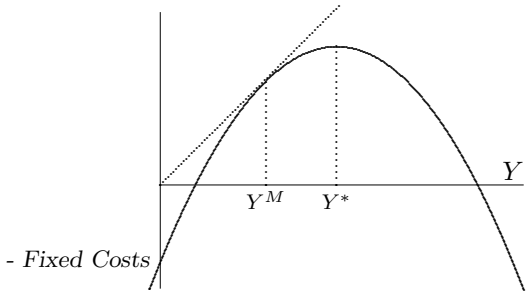


Diagram 2

This result rules out the above theory of markup as irrelevant, when the behavior of capitalists is introduced. The optimal output cannot be reached, and the firm will *attempt* to use fully its capacity.

References

BRENNER R. 1998, "The Economics of Global Turbulence," *New Left Review*, Vol. 229, pp. 1-264.

DUMÉNIL G., GLICK M., RANGEL J. 1984, "The Tendency of the Rate of Profit to Fall in the United States, Part 1," *Contemporary Marxism*, Vol. 9, pp. 148-164.

DUMÉNIL G., GLICK M., RANGEL J. 1985, "The Tendency of the Rate of Profit to Fall in the United States, Part 2," *Contemporary Marxism*, Vol. 11, pp. 138-152.

DUMÉNIL G., LÉVY D. 1993, *The Economics of the Profit Rate: Competition, Crises, and Historical Tendencies in Capitalism*, Edward Elgar, Aldershot, England.

DUMÉNIL G., LÉVY D. 1995, "A Stochastic Model of Technical Change, Application to the US Economy (1869-1989)," *Metroeconomica*, Vol. 46, #3, pp. 213-245.

DUMÉNIL G., LÉVY D. 1996, *La dynamique du capital. Un siècle d'économie américaine*, Presses Universitaires de France, Paris.

DUMÉNIL G., LÉVY D. 1998, The Classical-Marxian Evolutionary Model of Technical Change. Application to Historical Tendencies, Cepremap, Modem, Paris.

FOLEY D. 1998, Simulating Long-Run Technical Change, Department of Economics, Barnard College, Columbia University, New York.

MARX K. 1847, *The Poverty of Philosophy*, Progress Publishers, Moscow, 1973.

MARX K. 1867, *Capital, Volume I*, First Vintage Book Edition, New York, 1977.

MARX K. 1894, *Capital, Volume III*, First Vintage Book Edition, New York, 1981.

OKISHIO N. 1961, "Technical Change and the Rate of Profit," *Kobe University Economic Review*, Vol. 7, pp. 86-99.

SHAIKH A. 1980, "Marxian Competition versus Perfect Competition: Further Comments on the So-Called Choice of Technique," *Cambridge Journal of Economics*, Vol. 4, #1, pp. 75-83.

Référence non trouvée : DUGL 1999 (a)

Contents