Italian Economists of the 20th Century

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Edward Elgar
Cheltenham, UK • Northampton, MA, USA

Published by
Edward Elgar Publishing Limited
8 Lansdown Place
Cheltenham
Glos GL50 2HU
UK

Edward Elgar Publishing, Inc.
6 Market Street
Northampton
Massachusetts 01060
USA

A catalogue record for this book
is available from the British Library

Library of Congress Cataloguing in Publication Data

Italian economists of the 20th century / edited by Ferdinando Meacci.
Includes index
1. Economics—Italy—History—20th century. 2. Economists—Italy.
I. Meacci, Ferdinando.
HB109.A2I86 1998
330'.0945'0904—dc21 97–39370
CIP

ISBN 1 85278 886 0

Printed and bound in Great Britain by
Biddles Ltd, Guildford and King's Lynn

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11. Paolo Sylos Labini

Joseph Halevi

Paolo Sylos Labini is a major economic thinker and one of the foremost Italian intellectuals of the post-war period.[1] The significance of Sylos Labini's work lies both in the range of issues addressed by the author – spanning from growth and development theories to oligopolistic formations, to the study of social classes – and in the very conception of the nature of economic analysis contained in his contributions (Rothschild, 1995). In a nutshell, Sylos Labini's methodology can be described as unifying the *historical* with the *theoretical* approach. The historical dimension differentiates the author's works from most contemporary formalistic theorizing: the validity and the limitations of a particular theoretical construction are sought both in relation to its logical robustness and in connection to the reality that the theory is supposed to study. The contextualization of economic theories emerges particularly well in Sylos's treatment of classical economics, of Smith, of Marx, of Schumpeter and of Keynes. The role of history in forming the essential reference point for the development of economic ideas, stems from his idea that 'in the social world, the fundamental premises, i.e. the phenomena forming the social reality, are of a historical nature: they vary qualitatively and irreversibly'.[2] It therefore follows that the process of abstraction requires two types of theories: 'theories concerned with phenomena which are observable at a given point of time, and theories dealing with the transition from one reality to another' (1960, 6).

The emphasis on history brings Sylos's endeavour close to the path followed by economists such as Kuznets, Lewis and Abramovitz. The contributions of these economists do not explicitly intersect with the main body of economic doctrines, as if the empirical and the abstract proceeded on two separate planes.

In order to highlight the connection between theory and history in Sylos Labini's thought, I will survey his writings on a thematic basis rather than chronologically. This procedure is made easier by the fact that Sylos's works have displayed over time a basic common core centred on the interaction between technical progress and market structures. This essay will deal therefore with the following aspects of Sylos's contributions: the

conceptualization of the main phases of economic growth, including the extremely original approach taken towards Smith, Marx and Schumpeter, the three major theorists of growth and/or cycles; the seminal study on the connection between oligopoly and technical progress; and, finally, on the socio-economic dynamics of post-oligopolistic capitalism.

THE PHASES OF ECONOMIC GROWTH

The phases of economic growth from the 19th century to the present are studied by Sylos Labini in relation to the factors engendering the growth of productivity. In his view, the causes and implications of technical change differ as to whether the economy operates under competitive or oligopolistic market forms. The dynamics of competition is viewed essentially in Smithian terms, whereas Keynesian ideas are considered to be relevant in the subsequent oligopolistic stage, particularly when drastic declines in effective demand overshadow all other structural phenomena. The historical evolution from competition to oligopoly is addressed in a number of essays which I shall now attempt to synthesize (1954, 1970, 1974a, 1991, 1993a).

From the Smithian Process to the Spread of Oligopoly

The competitive mechanism, call it a Smithian process, is identified with a situation in which prices are determined by classical costs of production in the long run while in the short run they fluctuate according to demand and supply conditions. The chief factor in the determination of long-run competitive prices is the distribution of the fruits of technical progress conjointly with the dynamics of money wages.

In the Smithian process, the increase in productivity is accompanied by 'a slower increase in money wages, with the consequent fall of prices, precisely as happened in the last century. The Smithian process presupposes flexibility of both prices and wages, and in both directions, upward and downward; thus it presupposes a situation not far from competition in the product and labour markets' (1993a, 313).

It is, then, suggested that competitive capitalism evolved into an oligopolistic system towards the end of the 19th century, with the turning point being located around 1897. Using data for the UK and the United States, Sylos argues that – except for a brief interruption due to the American civil war – industrial prices fell steadily until 1897. During the same period, money wages rose moderately, so that the gains in real wages were due chiefly to the fall in prices. A major feature of this period is the similarity in the behaviour of industrial and raw material prices. While in the short run

both fluctuated according to the conditions of supply and demand, in the long run their variations were determined by the relative rate of change in productivity.

The process just described can be likened to a classical growth mechanism fuelled by the interaction between productivity growth, prices and the rate of profit. The first element leads to a decline in the production costs of commodities, which in turn leads to lower natural prices since capitalists – in virtue of competition – cannot retain the fruits of technical progress within their firms by means of higher profit margins. The absence of barriers to entry means that, in the Smithian process, production prices gravitate towards a uniform rate of profit.

The connection between the aforementioned elements is bound to break down in the oligopolistic stage of capitalism. Both market forms, however, are subjected to the process of 'dynamic substitution', a term coined by Sylos Labini himself (1988, 1995). Dynamic substitution occurs whenever the technological improvements in the capital goods sector reduce the cost of machines relative to wages. A similar view has been offered by Pasinetti for whom in the new situation 'it takes a lower total (direct and indirect) amount of labour inputs per unit of output to make the new machines and then to operate them with fewer workers than to employ the replaced workers with the old machines' (Pasinetti, 1981, 216). The concept of dynamic substitution is very important in Sylos's works and, in fact, it existed in his writings well before the invention of the term. Under competition, where no barriers to entry or exit exist, dynamic substitution spreads to the whole range of industries inducing a cumulative process of investment and technical change. Under oligopoly, the possibility of retaining the benefits of technical progress within the large firms tends to generate a labour-saving form of investment without a correspondingly strong cumulative process.[3]

Oligopoly and the Rise of Unused Capacity

The changes in wage and price behaviour which set in after 1897, are revealed by the role played by collective bargaining in a context dominated by the emergence of concentrated industries. The latter meant that:

> Each firm tends to regulate price on the basis of cost variations, provided that cost variations are common to all firms, in order not to lose its market share. As a rule, demand does not affect price simply because firms tend to regulate supply in such a way as to adapt it to demand variations – which is possible not only when output is to be reduced, but also when it is to be increased, since as a rule capacity is not fully utilized; thus demand and supply vary together and price is not affected by their variations. Price, then, is modified only if cost, particularly direct cost, varies. (Sylos Labini, 1993a, 315)

The novel analytical element in the presentation of the price mechanism in a concentrated economy is the role played by the degree of capacity utilization which, in turn, has significant repercussions on the business cycle. Unused capacity may exist also during the cycles underlying classical–Marxian competition as a result of the idling of the equipment of the firms which cannot survive the fall in prices below production costs (Sylos Labini, 1984a,b). Under oligopoly, spare capacity becomes, so to speak, a control variable in the firm's strategy to regulate supply in relation to demand. The possibility of using excess capacity in a strategic manner is due to the existence of barriers to entry, which are tied to the technological structure of oligopolistic firms. However, not all productions are undertaken under oligopolistic conditions. This is especially true of agriculture and raw materials outputs, where product differentiation is limited and substitution is high. In this case, prices are determined by the conditions of supply and demand in the short run and by the cost of production in the long run. As a consequence, the new regime of price formation entails a systemic divergence between the variations of prices in industry as compared with those in agriculture and raw materials. In industry, prices vary asymmetrically in relation to costs. When money wages increase more than productivity and/or raw material prices rise because of a rising demand for them, industrial prices rise as well. The transfer of the additional costs on to prices does not take place in full because of the limits imposed by the existing degree of competition. These limits are felt especially when international trade grows significantly. By contrast, if the dynamics of money wages falls short of productivity growth and raw material prices remain stable or decline, the rise in profit margins replaces the fall in prices of the era of competitive capitalism.

The asymmetric price behaviour alters also the dynamics of the terms of trade. During the 19th century, the long-term tendency in the terms of trade was determined, as foreseen by Adam Smith, by relative movements in the cost of production. In the present century, productivity gains in industry, as well as technological innovations leading to a reduction in the use of raw materials per unit of output, do not translate themselves into a relative cheapening of industrial products. On the contrary, *ceteris paribus*, they tend to reduce the demand for raw materials, with a negative impact on their prices. Innovations in the raw materials sector tend, on the other hand, to reduce the supply price of primary commodities. Thus in the oligopolistic stage of capitalism, productivity gains tend to be retained within firms rather than being distributed to the whole system via a reduction in prices. As a consequence, the dynamics of the oligopolistic regime are governed by the interplay between the forces which push towards an expansion in demand and the forces which constrain such an expansion. On this basis, the new regime

is split into two phases: one spanning from the turn of the century until the 1930s, and one covering the whole of the post-war period (Sylos Labini, 1991, 1993b). In the second phase, money wages increased more than prices while real wages often increased more than productivity. This phenomenon, coupled with the expansion of public expenditure and of exports, reduced the constraints on demand creation, thereby explaining the much milder character of economic fluctuations since 1945.

The Optimum Rate of Profit

Sylos's analysis of the first phase brings into sharp relief the different role played by the rate of profit in the new regime as compared with the old one. The analysis is centred on the formulation of a new concept defined as the *optimum rate of profit* (1984c, 1992). This represents the point where the effective demand effect of a wage increase is maximized while its cost effect is minimized. Classical theory privileged the inverse relationship between the rate of profit and the wage rate. Yet any radical departure from the stringency of the competitive mechanism leading to a uniform rate of profit would bring up the issue of too high or too low profit rates.

According to Sylos Labini, the First World War and the adjustment period immediately following it gave a new impulse to the process of concentration started at the turn of the century (Steindl, 1976). The use of new technological systems in the United States expanded labour productivity very rapidly. But money wages increased less than productivity with a slight fall in industrial prices. Consequently, the lag between the growth of real wages and that of productivity limited the expansion of consumption demand. The latter was growing only on the account of the expansion of the wage bill and in the wake of a sharp rise in luxury consumption. Yet these factors were not sufficient to offset the negative impact on effective demand stemming from a slow growing wage bill. Profits were then used for the provision of international loans, which did not, however, make up for the slack in effective demand. Speculation on the stock exchange became, at this point, the natural outlet for the mass of profits which could not find an adequate level of effective demand for their absorption. The Great Depression was thus caused by excessive profits (Sylos Labini, 1984d, 1993b).

A crisis engendered by a too high rate of profit is the polar opposite case of the classical concern with falling rates of profit. The identification of such a possibility stems from a typical Marxian–Kaleckian conception of wages as being both a cost of production and a source of effective demand for consumption goods. The notion of the optimum rate of profit is an attempt to combine these two aspects of the role of wages.

A change in the wage rate, when measured in relation to the rate of labour productivity, has upon investment both a demand effect and a profit effect. Aggregate investment can, then, be portrayed as the product of two independent functions (Sylos Labini, 1984c, 215):

$$I = I_g I_d \tag{11.1}$$

where I is total investment, I_g is the level of investment generated by the profit effect and I_d that caused by considering wages as income. In terms of the rate of change of investment we have (asterisks denote rates of change):

$$I^* = I^*_g + I^*_d \ . \tag{11.2}$$

Once the above two functions are analysed separately, it is found that the increase in aggregate investment is maximized when:

$$(d\, I^*_d / dw^*) = -(d\, I^*_g / dw^*). \tag{11.3}$$

In other words, the rate of aggregate investment reaches its maximum when the increase induced by a rise in the wage rate, w, offsets the fall caused by the negative impact on profit of a rise in w. The optimum rate of profit is derived from an optimum wage rate. This is not, however, an equilibrium solution as it only shows that, for accumulation to proceed without major breakdowns, the wage rate cannot diverge too much from its optimum rate. In a multisectoral framework, Sylos argues, there will be some activities in which the optimum rate of profit is zero. These are thought to be located mostly within the speculative and financial sphere, especially when their function is not the creation of wealth but, rather, its social redistribution.

Sylos Labini's conception of the optimum rate of profit has certain affinities with Pasinetti's dynamics of vertically integrated sectors (see Pasinetti, 1981 and Teixeira's chapter on Pasinetti in this volume). According to Pasinetti, the growth rate of wages, engendered by technical progress, constantly changes the coefficients of per capita demand. There will then be sectors where demand will be growing very slowly or even stagnating. Eventually, these sectors will either disappear or will represent just a minimal proportion of the economy's output. In this case, the optimum rate of profit will be tendentially falling.

Rethinking the Cobb–Douglas

The concept of the optimum rate of profit plays, along with the concept of dynamic substitution, a crucial role in Sylos's works. Indeed, the latter

concept existed in Sylos's writings well before the invention of the term. Under competition, where no barriers to entry or exit exist, dynamic substitution spreads to the whole range of industries inducing a cumulative process of investment and technical change. Under oligopoly, the possibility of retaining the benefits of technical progress within the large firms tends to generate a labour-saving form of investment without a correspondingly strong cumulative process.

The concept of dynamic substitution, however, serves a more general theoretical function. For it allows to go beyond the question of the choice of technique raised during the capital debates in the 1960s. In this context, the traditional Cobb–Douglas production function acquires a novel dimension (Sylos Labini, 1995). As a tool for expalining the distribution of income this function was made irrelevant by those very debates. Yet it can be reformulated in the context of the theory of economic growth. Sylos argues that the two exponents of the function, α and β, can be collapsed into one, γ, which can in fact be greater than unity. This gives the new relation

$$Y/L = (K/L)^{\gamma}$$

where variations in the capital/labour ratio express both changes in the technical features of production and in the skills of the labour force. The possible values of the exponent γ have nothing to do with marginal productivity principles. Indeed, these values relate to the rate of change in labour productivity resulting from the rise in the degree of mechanization due to the expansion of production and to the increasing ratio of the price of labour to the price of machinery.

This is the most that can be asked from the Cobb–Douglas aggregate production function. According to Sylos Labini, however, dynamic analysis should be based on multisector models which account for changes both in demand and in technical progress. Here Sylos seems to share again Luigi Pasinetti's approach with the difference that Sylos attaches greater importance to endogeneous technical progress.

ECONOMIC THEORY AND HISTORICAL PERCEPTIONS

Smith and Ricardo

Following Sraffa's critique of the Marshallian approach to the laws of returns under competitive conditions, Sylos considers classical economics as the appropriate analytical framework for the study of the regime of competition. In this context, Sylos Labini has brought about a major reappraisal of

Smith's position, which led him also to highlight the different economic concerns and historical perceptions of Smith and Ricardo (1984a, 1990a).

Smith's theory of labour commanded is justified if it is interpreted as an instrument aimed at studying intertemporal comparisons under the assumption of a given distribution of income between profits and wages. This original interpretation of the concept of labour commanded has become an integral component of a recent reappraisal of Smith's theory of value (O' Donnell, 1990). Consider a situation in which w is the unit wage rate per hour, expressed in terms of a given commodity; H is the quantity of labour embodied in production, measured in terms of the number of hours and P is the unit price. Then:

$$wH = P. \tag{11.4}$$

Thus the ratio P/w is the amount of labour commanded. Assume now that the quantity of labour embodied to produce a given commodity declines, because of technical progress, from H_1 to H_2, where $H_2 < H_1$. We have:

$$(H_2/H_1) = (P_2/w_2)/(P_1/w_1). \tag{11.5}$$

The left-hand side of equation (11.5) is the ratio between two different quantities of labour embodied. This ratio will coincide with the ratio between two different quantities of labour commanded only if the distributional factor remains unchanged. Now, according to Sylos Labini, Ricardo's dissatisfaction with Smith's measure derives from Ricardo's own concern with changes in the distribution of income, arising from the conviction that the tendency towards decreasing returns in agriculture will outweigh, in the long run, improvements generated by technical progress. As a consequence accumulation was seen by Ricardo to meet with increasing difficulties owing to variations in the distribution of income in favour of rents. This was historically determined, in Sylos's view, by the upheavals caused by the inflationary effects of the French Revolution and Napoleonic wars on the price of corn (1984e, 32–3).

For Sylos Labini, the modernity of the Smithian approach can be gauged in relation to the additional issues (i) of comparisons between different economic systems, and (ii) of the similarity between the labour commanded standard and the modern price deflator. In the first case, the exchange rate is not an appropriate measure of the different degrees of development. Statistical comparisons must be made by taking a given basket of commodities and then establishing how many hours of work are needed for their purchase by, say, a worker in China as against a worker in the United States. The notion of labour commanded allows us to do just that.

The second issue, the price deflator aspect of Smith's notion, may be evinced by looking at the inverse of the ratio (P/w). If P is taken as the price of consumption goods, w/P is nothing but the real wage rate. Hence a rise in w/P, with an invariant distribution of income, means that productivity has increased by the same proportion. Such a ratio would have no meaning outside an intertemporal framework or outside comparisons between altogether different economic situations. Today the price deflator takes up the role played by the labour commanded standard, yet it is conceptually linked to it. Both measures are by necessity imperfect because of modifications in the quality and in the range of products (Sylos Labini, 1984a, 1992).

In Adam Smith, the competitive mechanism led to growth because it did not allow the retention within the innovating firms of above-normal rates of profit. The existence of legally based limits to entry is, in Smith, linked to institutional backwardness stifling technological progress. In Sylos Labini's study of contemporary oligopoly, the existence of entry barriers and of differential profit rates is tied to the process of technical change. In this context, if in the post-war phase of oligopolistic capitalism, growth rates were much higher than in the competitive era, this was due not to endogenous but to institutional factors, such as the role of trade unions, as well as to the exogenous factor represented by public expenditure, the expansion of which, however, is thought to give rise to increasing troubles (1993c, 59–62).

Marx and Schumpeter

If Smith is portrayed as the theorist of competitive growth, Marx is identified as the theorist of competitive accumulation and cycles leading to concentration, while Schumpeter is the economist straddling between the two epochs. The historical importance of the two authors is brought out by Sylos in an essay on Marx and Schumpeter published in Italy in 1954. The dominant theme in the Marx part of the Marx–Schumpeter essay is not value theory but the process of accumulation and concentration of capital (1984b).

The seeds of the optimum rate of profit concept, discussed above, can be found already in this essay. Sylos observes that the contradictory nature of capital accumulation revolves in Marx around the role of wages as a source of effective demand and as an element of costs of production. When accumulation expands, employment rises and wages act as a source of effective demand for consumption goods. However, when unit wages begin to rise, they start acting upon accumulation as costs of production. Capitalists then try to reduce costs by means of new machinery which increases the organic composition of capital. A great merit of Sylos's essay consists in proving how important the notion of classical competition is in Marx's theory. The study shows very clearly that Marx's theory is centred on the

regular extension of capitalist relations. In other words, the more the economy's technical basis expands, the more systemic becomes the mechanism of cyclical accumulation founded on the periodic formation of the 'industrial reserve army'. In this respect there is a significant conceptual difference between Sylos's conception of the reserve army and the characterization given to it by authors such as Kaldor (1956) and Morishima (1968), for whom Marxian unemployment arises only when the stock of capital is not large enough as to employ the whole of the labour force.

Although Marx is praised for having anticipated the tendency towards concentration, he is criticized for not delving in its economic aspects, and for not considering that real wages might rise secularly thanks to the combined action of technical change and trade unionism. This last theme has been given added emphasis in a recent critical evaluation of Marx's ideas. The whole thesis about immiserization is considered by Sylos as politically motivated. In fact, he argues, Marx was aware of Smith's view about the long-run increase in real wages. Furthermore, while *Das Kapital* was being written, real wages in England had been rising for quite some time, although very slowly (Sylos Labini, 1994).

According to Sylos Labini, Schumpeter shares with Marx the notion of circularity of production and the idea that cycles are the very essence of capitalist development. The difference lies in the role played by the entrepreneur in generating innovations. The introduction of an innovation stimulates imitating firms to demand loans in order to purchase new capital goods. Prices and output of these new goods will rise more than the rest, but when the innovation is finally installed and becomes fully operational, the repayment of banks' loans will give way to a price deflation. A further impact of innovations consists in the secondary wave generated by the diffusion of purchasing power. Under these conditions, a speculative boom is virtually inevitable so that the cycle itself is described as comprising four phases: prosperity, downswing, depression – the latter being the phase of debt liquidation – and recovery.

Great importance is assigned to Schumpeter's distinction between the innovating industries leading the cycle and the industries towed by them. Schumpeter's distinction is seen also as a methodological criterion for empirical studies. Sylos's own research has shown that the fast growing industries are those in which variations are less regular and where the overall cycle is less apparent. Both Marx's and Schumpeter's contributions are appreciated for attempting to explain cycles in endogenous terms.

Sylos points out that Schumpeter did recognize the formation of what he called 'trustified capitalism', but thought that such a system would be quite stable. As a consequence, the outbreak of the Great Depression is explained by Schumpeter as due to the action of competitive forces. Because of the

neglect of the role of large concentrated firms, Schumpeter's theory of the cycle is valid up to the First World War. Afterwards, Sylos argues, the process of concentration changed the nature of the cycle in a rather radical manner.

The social implications stemming from Sylos's analysis of the tendency towards concentration, or rather oligopolization, are quite distinct from the pre-Sweezy Marxist view (Preobrazhenski, 1985), as well as from marginalist approaches (Robinson, 1941). Marxists, such as Rosa Luxemburg and Evgenii Preobrazhenski, did recognize the negative impact of concentration on effective demand, but gave to it an immiserization content because they excluded any possibility of an increase in real wages. Likewise, economists such as Austin Robinson considered that monopolies would sharpen social conflict. The analytical basis for such a conclusion was derived from Cournot's theory according to which under monopoly profits are above, and output below, the ideal competitive norm. But in the context of Sylos Labini's dynamic approach, the Cournot static solution is 'irrelevant for the critical evaluation of the social implications of different market forms'. For surplus profits, if 'invested in plant and equipment or if used in R&D, may allow for a growth of production and of productivity higher than that of the small firms operating under conditions close to perfect competition' (Sylos Labini, 1993b, 164).

Thus the social implications of the rise of oligopolies should be gauged in terms of the impact on the forces generating investment and accumulation. It is at this point that Sylos Labini's seminal contribution to the relationship between oligopoly and technical progress must be brought in in its full dimension.

OLIGOPOLY, TECHNICAL PROGRESS, EFFECTIVE DEMAND

The first edition of *Oligopolio e progresso tecnico* was published in Italy in 1956. The first English edition appeared in 1962 and the final revised version in English dates from 1969. Its status as a fundamental work is evidenced by the fact that the book has been reprinted in 1994 by the American publisher Kelley in its series on economic classics. Translated into many languages, including Japanese, *Oligopoly and Technical Progress* has had a profound effect on both the Marxian strand of thought, represented by Paul Baran and Paul Sweezy, and on economists who tackled the twin issue of development and the terms of trade (Baran and Sweezy, 1966; Merhav, 1969; Glynn and Sutcliffe, 1972; Sau, 1982). Among microeconomists the influence of the book shows up via its treatment of the barriers to entry. In this case, Sylos's

approach has been associated with the parallel work of Bain (Scherer, 1980). However, *Oligopoly and Technical Progress* differs from Bain's study (1956) in that much greater emphasis is given to technological discontinuities while the whole question of oligopolies is tied to their macroeconomic impact.

Oligopolies as an Expression of Dynamic Transformations

To put Sylos Labini's conception of oligopolistic structure and pricing into proper perspective, it is necessary to add to the irrelevance of Cournot's proof the shortcomings of the solution – independently formulated by Sweezy and Hall and Hitch (1939) – based on the kinked demand curve. The main limitation of the kinked demand curve consists in that it fails to account for the determination of a particular oligopolistic price.[4] By contrast, the analysis of price formation must be grounded in the structural features of modern production processes which are characterized by scale economies involving indivisibilities and technological discontinuities of plant and equipment. In Sylos's model, firms differ in relation to their productive capacity. Thus changes are irreversible since their occurrence entails variations in the number and in the composition of plants.

The novel conceptual dimension contained in *Oligopoly and Technical Progress* has been highlighted by Modigliani in a famous review article discussing Bain's and Sylos's books (Modigliani, 1958). Modigliani pointed out that, in Sylos's theory, differences in firms' productive capacity exclude the possibility that large firms will increase their output in order to conquer the space of smaller ones. The example given by Modigliani is based on the assumption that the size of the market occupied by small firms is smaller than the output of the plant of the large firm. The large unit will then have to build plants of the size of those of small firms, or it will adopt an intermediate technology. In the first case, the costs of running the small plants might produce a too low rate of profit relative to the large plant. In the second case, the invasion of the market might require the reduction of prices below the average cost of small firms for a considerable amount of time. For Sylos Labini this kind of price war is not worth the candle, so that the oligopolistic units will refrain from upsetting the balance between large and small firms. Large firms do not pursue the elimination of the smaller units because of technological discontinuities. Their existence brings about a tendency for prices to settle just above the point at which the least efficient among the existing firms would not obtain the minimum rate of profit. It is important to observe that the level of the minimum rate of profit is exogenously given.

Entry barriers are effective whenever they allow a particular firm to perfect them through its technological ability to produce new goods or to differentiate

them. Analytically, barriers allow the determination of the limit price which will deter entry. Sylos starts from the postulate that firms attempting to enter a particular market will expect existing firms to respond by adopting a policy based on an unchanged level of production and on lower prices. The upshot of his discussion is that technological discontinuities, leading to scale economies, make it impossible to have a perfectly competitive solution. In particular, a different price will emerge depending on the type of firm which has started the entry process.

Sylos's theory of entry barriers, known in the literature as the *Sylos Postulate*, has been absorbed by mainstream microtheorists. Models have been built with the purpose of identifying strategies for dynamic entry (Friedman, 1983). Furthermore, the notion of limit pricing has been relaxed in order to show that unused capacity provides a strong enough deterrence to entry (Spence, 1977). Little can be said against the rigour with which these models have been constructed. Just the same, they lack the dynamic insights of Sylos's reasoning. In particular, neither of the above mentioned authors attempts to develop a theory of structural and technical change, even at the level of the firm. Moreover, the issue of excess capacity is not tied to the implications that such a phenomenon would have for the economy as a whole. This question remains untackled also in the game theoretic approaches to oligopoly which nowhere discuss matters related to capital accumulation and effective demand.

By contrast, the dynamic essence of Sylos's approach consists in that a higher degree of monopoly may increase output and accumulation if the appropriate level of investment is forthcoming. The crucial question here becomes whether or not investment is endogenously generated. This would require study of the variation of prices and costs under oligopolistic conditions. To grasp the link between variations in prices vis-à-vis costs and the determination of investment, one may refer to classical–Marxian competition where any reduction in the cost of production leads to a fall in the natural price of commodities. In this context, as clearly shown in Marx's own formulation of the trade cycle (Marx, 1967, 1968) and in Sylos's treatment of Marx's and Schumpeter's theories, the level of investment is always positively related to the share of profits over national income. Thus a different price–cost regime ought to have different implications for the determinants of investment (Del Monte, 1975; Halevi, 1985).

The Dynamics of Costs and Prices

Two crucial observations flow from the analysis of the role of entry barriers: (i) perfectly competitive situations are structurally impossible, as acknowledged by Modigliani; (ii) profit rates are unequal. The first

observation means that if a large firm wanted to penetrate the market of a rival to obtain part of that profit rate, it would not achieve the desired outcome. Instead it would cause chaos in the market concerned. The second observation distinguishes between the existence of differential profit rates under competitive as compared with oligopolistic conditions. In the former case, differential profit rates result from temporary maladjustments and imperfections. In the oligopolistic case, by contrast, the differences are structurally determined by the nature of technology and the related scale economies. This is the economic context of the relation expressing the full cost principle, as presented in *Oligopoly and Technical Progress*. Hence the price given by the full cost formula is:

$$p = v(1 + q). \tag{11.6}$$

In equation (11.6), v is the variable or direct cost and q is the margin charged on it. In fact, qv contains two elements. The first, $q'v$, is the ratio of fixed costs to output per unit and the second, $q''v = g$, defines the margin on v necessary to obtain a gross profit, g, per unit.

Price setting under conditions of barriers to entry explains only why large firms are uninterested in price wars. It does not explain their market power. By the same token, formula (11.6) does not explain the determination of the price, but only its variations. Thus the notion of the mark-up q is meaningful only in a dynamic context when changes in cost factors are brought in. In equation (11.6), prices fall or rise following a decrease/increase in prime costs v on the assumption that overhead costs vary in the same direction as the cost of labour and of raw materials. The inclusion in the formula of $q''v$ implies that oligopolistic firms incorporate into their pricing decisions a target rate of profit. This factor eliminates the dichotomy between sales maximization and profit maximization because, as long as investment projects are financed by profits, the maximization of profits leads to a maximization of sales. In fact, the maximization of sales at the expenses of profits operates only in the very short run. In the longer run, profits are needed to finance investment in order to expand sales. This last aspect – systematically stressed in the book – is seldom emphasized in neoclassical writings on oligopoly which focus instead on the type of equilibria attainable by the firm.

Technological innovations play a particularly important role in determining variations in costs. By and large, productivity increases depend both on regular improvements in organization and, especially, on the introduction of new technologies embodied in new equipment. If the new methods are available to all firms, the ensuing overall decline in v will lead to a fall in prices. But if the new methods can be installed only by large firms, the reduction in v will be limited to this set of firms, so that the prices of

their outputs need not fall. Part of the productivity increase can be absorbed by higher wages paid out by those firms, and part can be transformed into a higher rate of profit through the rise in q. If the oligopolistic units feel safe enough in their new position, the new value of q becomes the new parameter for the determination of price variations in the wake of further changes in the costs of labour, of raw materials and of overheads.

Consequently, thanks to technological discontinuities, oligopolistic firms tend to become privileged because they are able to retain the gains ensuing from improvements in productivity. Oligopolistic structures are common in industry, while in agriculture and mining competition prevails. It follows that industry is a privileged sector relative to primary activities. As pointed out earlier in this essay, the prices of primary products vary in the short run according to supply and demand conditions, whereas in the long run they depend upon the costs of production. The terms of trade tend to move in the long run against the primary sector because, when industries are oligopolistic, increases in industrial productivity lead either to increases in profit margins or, more frequently, to parallel increases in real wages. Thus industrial prices do not fall relative to those of primary commodities. Such an asymmetry in price behaviour is strengthened if one adopts Kaldor's view according to which raw materials are produced under diminishing returns (Kaldor, 1976). In this case, given the mark-up on industrial costs of production, the rise in the price of raw materials leads to an increase in the price of industrial products, rather than to a change in the terms of trade in favour of primary producers.

Sylos's dichotomy between privileged and non-privileged industries has had a great influence on the study of the relations between developed and developing countries. His work has provided a theoretical foundation to the theses of Prebish (1951) and Singer (1950) on the deterioration of the terms of trade between countries producing primary commodities and the industrialized world (Merhav, 1969).

As far as industry proper is concerned, the picture that emerges from the analysis is as follows. The mark-up q tends to remain stable in the long run. In the short and medium term, the mark-up declines whenever prime costs increase, while it rises when they decline. The limit to the transfer, in an open economy, is stronger the more the source of cost increases is of a domestic nature – for instance, wage increases caused by the institutional forms of collective bargaining existing in any one country – and the higher is the share of external trade.

The fact that under oligopoly firms do not take prices as given by the market, means that they can regulate supply instead. Such an option implies the existence of unused capacity as a structural characteristic of the modern economic system. Other authors (Morishima, 1976) have expressed similar

views, taking the regulation of supply as a datum without explaining how it came about.

The Macroeconomic Impact of Oligopoly

The treatment of unused capacity appears to be rather problematical in contemporary economic thought. Let us take, for instance, the works of Michal Kalecki, whose ideas were extremely close to those of Sylos Labini. In Kalecki's approach spare capacity is viewed both as a central feature of oligopolistic economies and as a factor of stagnation stemming from an inherent deficiency of effective demand (Kalecki, 1971). Methodologically, Kalecki has conflated these two elements into one. In his analysis, no distinction is made between the spare capacity planned by oligopolistic firms and the economy-wide unused capacity resulting from insufficient aggregate demand. In my view, a logical, and historically determined, answer to this question can be obtained from Sylos's classic book as well as from other papers (1954, 1984e). His arguments, if I have understood them correctly, are centred on the significance of aggregate demand for the investment decisions of oligopolistic firms.

The regulation of supply by oligopolistic firms implies that their individual productive capacity is not insignificant relative to the size of the market of their products. This factor conditions the type of innovations which these firms plan to introduce. If innovations require a complete restructuring of the methods of production, a new set of capital equipment is needed. For a given value of variable costs, restructuring involves an amount of expenditure which will increase the total cost of production. Lower costs per unit can be obtained, therefore, only if the firm's output expands. If the oligopolistic enterprise finds itself operating in a particularly dynamic market, the expansion of the demand for its own products – special demand – is not strictly related to the overall level of effective demand. Of course, firms can stimulate demand for their products by means of commercial policies, but such an action has its limit in the amount of income per capita which can be spent in purchasing these products. On balance, the growth of special demand is a function of the firm's commercial policies and of the rate of expansion of aggregate demand (Sylos Labini, 1984f).

As a consequence, the introduction of innovations involving an increase in total costs is heavily dependent upon the dynamics of aggregate effective demand. In this context, the type of innovations that oligopolistic firms are ready to undertake without much difficulty are those leading to a reduction in prime costs.

Under oligopoly, the fruits of these innovations do not manifest themselves through a decline in prices but are translated into higher profit

margins and/or higher wages in the industries concerned. The principle of dynamic substitution – determined by an increase in the ratio of the money wage rate to the price of machines – operates also under oligopolistic conditions. Unlike Smith's competitive process, oligopoly's ability to retain the benefits of technological improvements causes a persistent bias in favour of labour-saving innovations without compensation. Indeed, the compensatory mechanism would depend, in the main, on the expansion of aggregate investment, not on the individual decisions of firms. In particular: 'the expansion of demand must come from stimuli that are external to the system of private enterprise. These can be of two types: public expenditure and foreign demand' (Sylos Labini, 1984f, 139).

How will profits be used if the exogenous growth in aggregate demand is not large enough to induce oligopolistic firms to expand? The answer given in *Oligopoly and Technical Progress*, albeit insightful, is not fully developed. If demand determines the limit to investment, firms may use their monetary proceeds to invest in financial assets and in operations on the stock exchange. These activities are certainly rational from the standpoint of the single corporation. But from the perspective of the economy as a whole, financial operations as such do not constitute investments as they do not expand productive capacity. The existence of oligopolies is associated with a high degree of self-financing. This entails changes in the role of the rate of interest. Investment decisions in the large firms will be, relatively speaking, little influenced by variations in interest rates. These will affect mostly the investment policies of small firms. The financial impact of oligopolies is presented only in general terms. The major insights that can be derived from Sylos's presentation are the possibility of a systemic separation between investment and finance and the asymmetrical impact of variations in the rate of interest.

Circular Flows and Oligopolistic Structures: A Simple Critique

Sylos considers the Sraffian–Marxian schemes of intersectoral relations to be the necessary starting point of the analysis of production. Both in his *Oligopoly and Technical Progress* and in a more recent book entitled *Progresso tecnico e sviluppo ciclico* (1993b) a Sraffa-type model is used to show that an innovation under competition will lead to the reabsorption of displaced labour, while under oligopoly it will not. These results depend exclusively on the special behavioural assumptions made by Sylos. In the model presented in *Oligopoly and Technical Progress,* the competitive outcome is tied to capitalists' decisions to move from a zero rate of accumulation to a positive one in order to purchase the new capital goods.

This kind of decision is an assumption. In general, there can be a number of outcomes – not involving full employment – all consistent with the competitive hypothesis. This raises a second observation about whether it is at all possible to establish a connection between circular intersectoral flows and the analysis of oligopolistic structures.

For my purposes it suffices to focus on the mark-up of the consumption goods sector (Loranger and Halevi, 1986; Halevi, 1991). In a two-sector circular model based on capital and consumption goods, the value of the consumption goods output must be equal to the combined wage bill of the two sectors and to capitalists' consumption. Assume now that the latter is negligible, that workers do not save and that unused capacity exists in both sectors. If the consumption goods sector's mark-up is given, then it must follow that, for a given initial distribution of the stock of capital, the oligopolistic forces operating in that sector are so strong as to determine the ratio between the two rates of utilization and the ratio between the sectoral techniques of production. This is very difficult to accept even for the short run. This conclusion stems from the structural characteristics of the two-sector classical model (Harcourt, 1963). More fundamentally, it is doubtful that Sraffa–Marx circular flows can integrate in a satisfactory manner the impact of oligopolies on the economy as a whole. Sylos's approach to the question of oligopoly should be looked at independently from the classical macrosectoral picture of production.

BEYOND OLIGOPOLY

In Sylos Labini's more recent work there is an attempt to outline a post-oligopolistic transformation of the system under the twin impact of non-manual labour and of the flow of innovations. The rise of intellectual labour is due to the large firms' emphasis on R&D, both on an internal basis and in connection to research institutions. Moreover, the flow of innovations has gained strength from the renewed growth of small firms thanks to the spread of electronic and computer-based methods of production and of organization (Sylos Labini, 1989). Unlike the traditional small units of the past, the workforce of today's small firms has a large and rising share of technicians, project designers, and so on. In the formulation of a post-oligopolistic view of capitalism, Sylos's own analysis of social classes has, undoubtedly, played an important role (1974b, 1986). The reference point of the study was Marx's thesis of the expansion of the proletariat and of the immiserization of the working class. The book argues – as Marx did – that the growth of non-blue collar jobs cannot be reduced to the expansion of menial services catering for the rich. Instead, the decline of the working class is seen as a physiological

phenomenon stemming from both the long-run rise in real wages and the formation of new types of activities based on intellectual labour.

The New Labour Market

The new transformations affecting contemporary capitalism are having a direct impact on the concept of unemployment as well. Keynes, and also Marx, viewed employment in relatively homogeneous terms. Today, it is imperative to look at both the unemployed and the employed as being constituted, within each group, of different categories of people. An analysis should also include the distinction between employment in small and large firms, as well as between payroll employment and independent occupations.

The overall trend of employment is determined by the interaction between the growth of income which stimulates demand, and technological innovations which reduce the quantity of labour per unit of output in the industrial sector. Industry is, therefore, still viewed as the branch generating the strongest impulses to growth. However, its importance is qualitative rather than quantitative. In this framework, Sylos Labini introduces the novel idea of an optimal growth rate of wages, which is that rate lying just above the growth rate of productivity. Its optimality consists in that the positive impact of wage increases on demand would not be offset by the negative impact on accumulation, since firms would have enough financial margins to bring about new technologies. The optimal growth rate of wages is not exactly the dual of the optimal rate of profit discussed earlier in the essay. In the case of the optimal growth rate of wages, the profit rate has to suffer a bit since unit wages are made to grow just a little above the rate of productivity.

Alongside the optimal increase in wage rates, an optimal degree of labour mobility is identified. The necessity of labour mobility stems from the fact that new activities arise and old ones disappear also when the growth rate is given. In this respect the Sylos thesis about the relationship between employment and labour mobility could be strengthened by using Pasinetti's theory of structural dynamics (Pasinetti, 1993). In Pasinetti's model, even with a given average growth rate, the economy's sectors will expand at different rates because of non-uniform technical progress. Furthermore, the per capita demand for each product will not grow uniformly because of Engel's law. It follows that workers must always move from the declining to the expanding sectors. Both Sylos and Pasinetti show that labour mobility and wage flexibility are not the same thing.

The dominant elements of the oligopolistic stage of capitalism are industrial concentration and technological discontinuities. In this stage mass production methods characterize the industrial sectors that impart the most dynamic impulses to the whole economic system. The following stage,

which can be deemed to have started in the early 1970s, is characterized by an increasing number of small but technologically advanced firms, both in industry and in services, operating under conditions of differentiated oligopoly. Thus the concentration process, already envisaged by Marx at its inception and later emphasized by Schumpeter, has come to an end as a process. Such a change was examined by Piore and Sabel (1984) in a well-known book. Yet it had already been outlined by Sylos Labini in a public lecture given at the University of Sydney in 1980 (1984g). In the new stage of economic growth we notice, together with the expansion of technologically advanced small firms, the rapid increase of activities heavily based on intellectual labour. In this context, the need to limit unemployment is no longer tied to the prescription of expanding output in the Keynesian sense.

The decoupling of employment creation from the traditional Keynesian mechanism, the latter deemed to be inapplicable today, is only a first step towards a more general separation of payments from measurable productivity (Sylos Labini, 1989). The process by which the economy moves away from a Keynesian situation can be outlined in the following way.

In the Great Depression, unemployment was the result of a sharp fall in effective demand. This phenomenon was captured by Keynes, for whom employment and output move in the same direction. In the post-war period, the connection between employment and output has become gradually more and more complex. The rise in wages and public expenditure have kept for a long period the major Western countries near a full-employment situation. Concomitantly, universal schooling has given rise to a population which – rather than seeking any type of employment – is interested only in certain kinds of occupations.

This complexity is bound to increase for two reasons. On the one hand, the process of automation will certainly continue unabated, leading to further expulsions of people from productive activities. On the other hand, new non-commodified tasks will have to be undertaken for strict social reasons. These are jobs where the traditional measures relating wages to productivity cannot possibly be applied. The waning of an objective economic basis in the determination of payments for the amount of work performed, raises the issue of the institutional mechanism on the basis of which distribution will be carried out. If distribution is centralized, it will have to be carried out according to each and everyone's needs. Alternatively, shares may be distributed to every citizen, but the practical difference in the two methods will be minor. In both cases the criterion of distribution will not depend upon a wage productivity relationship. The hypothesis of a fully automated society is an extreme case. Yet the possibility of a robotized economy is not so

unrealistic as it might have sounded only a few decades ago (Sylos Labini, 1986).

CONCLUSIONS

I would, at this point, place the advances made by Sylos Labini in economic theory on two levels. The first pertains to his theory of oligopoly and technical progress. Sylos's approach links together the study of market forms with the movements in productivity and their macroeconomic implications. In other words, each market form has its own macroeconomic side. A general microeconomic basis for an unspecified macroeconomy does not exist. In the case of oligopolistic systems, the Keynesian exogeneity of investment emerges neatly from the way in which firms utilize the fruits of technical progress.

The second level consists in Sylos's long-lasting endeavour to use and develop theoretical concepts in order to produce a *histoire raisonnée* of socio-economic evolution. This type of research is, for the post-war period, unique within the economics profession and outstanding in its own right. Sylos's approach allows us to link in an evolutionary manner different economic epochs within the history of industrial systems. It follows that every set of economic concepts, as well as their interaction – such as the notion of unemployment and its connection with technical progress – is historically specific (Sylos Labini, 1987, 1990b).

Sylos's works raise questions concerning the historical validity of any economic doctrine containing elements of dynamic transformations. Only marginalist analysis is not given a historically determined position because of the purely imaginary dimension of the market form it describes – static perfect competition. Interestingly enough, for similar reasons Hicks too did not contextualize marginalism (Hicks, 1969). On the whole, Sylos's approach now goes beyond economic analysis, although it originates from it. As society evolves it becomes more and more institutionalized. Cultural as well as other phenomena impact upon its transformation as much as economic phenomena do. This position is very firmly expressed in a special addendum to the English translation of the essay on Marx and Schumpeter (Sylos Labini, 1984b).

Hence no specific hierarchy of disciplines can be established in relation to the study of society. More explicitly, may it not be the case that Max Weber's refusal to separate the different elements of the social discourse is particularly valid today when 'economics' appears to be just a branch of applied mathematics?

NOTES

1. Sylos Labini was born in Rome on 30 October 1920. He studied economics and law at the University of Rome. After the Second World War, he spent a year at Harvard University studying with Joseph Schumpeter. Sylos Labini became Professor of Political Economy in 1954, teaching at the Universities of Bologna and Catania before moving to the University of Rome 'La Sapienza', where he has been working for more than three decades. Sylos Labini has been invited as a distinguished professor by a number of universities, such as Harvard and Sydney. In Italy he is a member of the Accademia dei Lincei.
2. All the translations from Italian are mine.
3. The notion of dynamic substitution may also be used to criticize the conceptual and empirical validity of the Cobb–Douglas production function. In a recent study, for instance, Sylos shows that in a dynamic framework the two exponents of the Cobb–Douglas can be unified into one. Although irrelevant for the analysis of income distribution, this may be used for the study of economic growth (1995).
4. An excellent discussion of the differences between the approach based on the kinked demand curve and those of Kalecki and Sylos Labini is found in Kriesler (1988).

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