

From the effective demand as a principle to the ownership of the capital as social responsibility. Rereading Luigi Pasinetti

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Abstract:

This paper tries to highlight some essential elements that emerge from Luigi Pasinetti's work. Much of the research project that Pasinetti developed, especially in the 1981 book, was already present in nuce in the 1974 collection of essays. Here the theory of effective demand is presented for the first time, emphasizing the essential differences between sequential and simultaneous economic reasoning. The relevance of structural change is already apparent, and will be explored in a multisectoral scheme only in the 1981 book. The main insights that can be drawn from Pasinetti's reflections on open economic systems and his ethical stance suggest that ownership of the means of production not only confers rights but it also imposes responsibilities on the community.

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While it is not difficult in producing arguments in favour of private ownership for the consumption goods, the private ownership of the means of production is a more questionable issue, simply because in an industrial system any decision about the use of capital goods has consequences that affect society as a whole.¹

Luigi Lodovico Pasinetti, who died on January 31, 2023, was the last of the great Italian economists who founded the so-called Cambridge School of Economics, a group of scholars who, in different ways, tried to develop the best ideas embodied in two epochal books: John Maynard Keynes' *The General Theory of Employment of Interest and Money* (1936) and Piero Sraffa's *Production of Commodities by Means of Commodities: A Preface to a Critique of Economic Theory* (1960). The economist Geoffrey Harcourt, who was a Ph.D. student with Pasinetti at Cambridge in the 1950s and who died a few years ago (on December 6, 2021), paid tribute to

* I would like to thank the two anonymous referees for their suggestions. Thanks also to Hervé Baron, Nadia Garbellini, and Gian Paolo Mariutti for some comments on an earlier version of the paper. The usual caveats apply.

¹ Pasinetti (2012, p. 17, our translation).



him in a *Festschrift* in 2012, calling him “the last of the great system-builders” (Harcourt, 2012). In fact, Pasinetti sought to construct an alternative economic paradigm based essentially on the phenomenon of production and technological change, as opposed to the dominant paradigm based essentially on the phenomenon of exchange and the scarcity of natural resources.² This was a particularly ambitious work, which he pursued doggedly until the end of his intellectual life, despite the fact that, as time went on, academia seemed increasingly disinterested in the theoretical problems emanating from the Cambridge school. The inability to truly understand the even normative relevance of Pasinetti’s analyses is probably a problem that cannot be solved by mistakenly relegating these works to a research program incapable of influencing the mainstream debate.³

In this contribution, I will try to make available to the reader some essential elements that emerge from the works of Luigi Pasinetti. These are topics that are suitable for students taking an economics course as part of a bachelor’s degree, and they are also very useful for restoring meaning to the public debate on economic policy.

For Pasinetti, as for Keynes, the main economic problems to be solved in a monetary production economy are the inability to provide full employment and the unequal distribution of wealth and income. But unlike Keynes, he does not limit his analysis to the effects of changes in final demand on employment and the distribution of wealth. In fact, Pasinetti also examines the impact that technological progress can have on major economic problems, in the conviction that the process of industrial production implies a continuous application of human ingenuity over time to the organization and improvement of production processes. The rationality hypothesis typical of *homo oeconomicus* is thus problematically replaced by a study of the economic consequences of human learning. It also develops a valuable Smithian insight that is too often overlooked by those who dissect *The Wealth of Nations* in search of functional rules for the uncritical glorification of the free market:

According therefore, as this produce, or what is purchased with it, bears a greater or smaller proportion to the number of those who are to consume it, the nation will be better or worse supplied with all the necessaries and conveniences for which it has occasion. But this proportion must in every nation be regulated by two different circumstances; first, by *the skill, dexterity, and judgment with which its labour is generally applied*; and, secondly, by the proportion between the number of those who are employed in useful labour, and that of those who are not so employed. [...] The abundance or scantiness of this supply, too, seems to depend more upon the former of those two circumstances than upon the latter (Smith, [1776] 1976, Introduction and Plan of the Work; our *emphasis*).

Next section shows how much of the research project that Pasinetti would later develop, especially in the 1981 book, was already present *in nuce* in the 1974 collection of essays. Here the theory of effective demand is presented for the first time, emphasizing the essential differences between sequential and simultaneous economic reasoning. This is a logical scheme in which the relevance of structural change is already apparent, and this will be explored later in a multisectoral scheme to which section 2 is devoted. Paragraph 3 concentrates on the

² This aim – also very clear in his doctoral thesis (Pasinetti, 1962) – is repeated in his main publications (Pasinetti, 1981, 1993, 2007). See also: Lunghini’s (2008) and Reati’s (2010) reviews of Pasinetti (2007); Halevi (2016); Garbellini (2022); and the reminiscences by Garbellini (2023) and Halevi (2023).

³ In order to understand Pasinetti’s research and to grasp its enormous relevance, it is not easy to contextualize his ideas, to reconstruct the debates in which he took part, and to update the results he obtained – results that are still robust but that we tend to bury and forget. In this regard, I was literally thunderstruck, a few steps away from graduation, by an article he wrote in 2000, in which he patiently and meticulously carried out this very work (see Pasinetti, 2000).

repercussions for economic policy by defining wages and productivity in accordance with Pasinetti's books, which draw attention to structural economic dynamics (Pasinetti, 1981, 1993). The following section highlights the primary insights that can be inferred from Pasinetti's reflections regarding an economy that is open to foreign trade, underscoring the importance of the "general principle of comparative-productivity changes advantage". In the final section, the objective is to showcase Pasinetti's ethical stance in his economic analysis, which proposes that the entitlement of means of production not only confers rights but also mandates responsibility towards the community. In line with the reading of Pasinetti's thought proposed here, the English translation of two of his short writings, previously available only in Italian, is published in the appendix. Both contributions are dedicated to the responsibilities that ownership of capital entails: the first is a speech prepared for the Saint Vincent Forum (Pasinetti, 2002) and the second is the entry "Capital" for the *Dizionario di Dottrina Sociale della Chiesa (Dictionary of Social Doctrine of the Church)* (Pasinetti, 2004).

1. The concept of effective demand as a principle

The scientific revolution promoted by Keynes finds one of its fundamental lynchpins in the concept of effective demand. Pasinetti is well aware of this, and his argument, first presented in the courses he taught at Cambridge between 1958 and 1962,⁴ could well be presented again today in courses on macroeconomics and economic policy. In this way, students can be put on the right track to understand that the concept of effective demand is not the same as the concept of aggregate demand. Nor does it simply describe a market adjustment mechanism based on changes in physical quantities rather than changes in prices within a general economic equilibrium framework. Rather, the term effective demand should be understood as a genuine scientific principle closely related to the characteristics of an industrial economy (Pasinetti, 2007, p. XV). To understand what it consists of, let us read some of the key passages of the Pasinettian lecture:

Among the peculiarities which an industrial society has acquired, with respect to more primitive (agricultural) societies, there is one that requires us to make a sharp distinction between productive capacity and actual production. In primitive (agricultural) societies, each farmer tries to produce as much as he can. He will then take whatever amount of his produce is in excess of his needs to the market. And there this produce will fetch the price the market makes. In an industrial society it is not so. At any given time, productive capacity is what it is – it cannot be changed. But productive capacity does not mean production – it is only *potential* production. In order that there may be *actual* production, there must be *effective* demand. [...] Changes in production entail changes in the utilization of existing productive capacity and in the employment of labour. A fall of total demand generates unemployment and a slump – a bitter reality so often experienced in capitalist economy (Pasinetti, 1974, pp. 31-32 and 33).

Thanks to Keynes and Pasinetti's careful reading of *The General Theory*, one can also understand the relevance within economic reasoning of using a system of causal equations as opposed to systems of simultaneous equations. The latter still dominate the economic policy debate, despite the highly controversial results they produce in the field of forecasting (Stiglitz, 2018). One of the tasks of a researcher in the field of economic analysis is to identify which variables are sufficiently dependent in one direction and sparsely dependent in the opposite

⁴ See Chapter 2, "The economics of effective demand", in Pasinetti (1974), pp. 43-73.

direction so as to be able to reason sequentially. And Pasinetti identifies a precise logical sequence in *The General Theory*:

$$\psi(L, \bar{M}) \rightarrow i \rightarrow \varphi(E, i) \rightarrow I \rightarrow \begin{cases} Y = C + I \\ C = f(Y) \end{cases} \rightarrow \begin{matrix} Y \\ C \end{matrix}$$

function ψ [whose arguments are the decreasing preference function for liquidity L and the amount of money issued by the central authority M] determines i [the interest rate] independently of anything else. Then, given i , the function φ [whose arguments are the falling expected profitability of investments E and the rate of interest i] determines I [the investment goods] independently of anything else; and finally, given I , equations (II.1) [$Y = C + I$] and (II.2) [$C = f(Y)$] form among themselves a smaller interdependent sub-system, which simultaneously determines Y and C [i.e., income and consumption goods] (Pasinetti, 1974, p. 44).⁵

The choice of a clear logical sequence in the field of macroeconomic theory presupposes at the same time the assumption of political responsibilities that tend to be less clear, or even irrelevant, where instead one reasons using systems of simultaneous equations. As Pasinetti pointed out in his Cantabrigian lectures, a reformulation of Keynes's analysis in terms of simultaneous equations means that "the typical features of an industrial society are made to recede, and the characteristic features of a rather imaginary 'exchange' economy are imperceptibly slipped in instead" (Pasinetti, 1974, p. 48). The consequences for the level of economic policy and the limits of state intervention in the economy are very significant: crises in a monetary production economy are not simply due to price or wage rigidities or "liquidity trap" situations. This is what Samuelson or Modigliani argued in the wake of Hicks, and what is generally found today in recommended handbooks for undergraduate economics courses, relegating the *General Theory* to a special case of a general equilibrium economic model. Instead, the authentic Keynesian lesson – derived from the logical sequence above and consistent with the principle of effective demand – shows that depressions can recur with regularity because the investment decisions of entrepreneurs transmit instability to the system. In the analytical language typical of the Cambridge School, the point can be expressed as follows: if there is a divergence between the desired and the actual capital/output ratios, entrepreneurs will not immediately make all the investments necessary to achieve full employment equilibrium. This becomes even clearer when the Keynesian pattern is developed in the long run:

For, as soon as economic investigation is carried over from the Keynesian short-run to movements through time, and the capital stock can no longer be taken as a given, is itself changing, then another side of the picture is bound to become relevant - the evolution through time of the physical possibilities of production (Pasinetti, 1974, p. 51).

2. The necessity of a multisectoral scheme

In order to extend the principle of effective demand in the long run, it is necessary to complicate the analytical framework described so far. Therefore, we will have to reformulate the Keynesian analysis in a theoretical scheme that takes into account the rapid changes in

⁵ The assumption of a liquidity preference function independent of the level of national income has been criticized by some economists (e.g., Patinkin, quoted in Pasinetti, 1997, p. 218, footnote 5). One of the referees rightly suggested to me that this independence is crucial for Pasinetti to support his sequential view of Keynes's analysis. On this point, see Bellino and Nerozzi (2017).

technology and in the composition of demand that are taking place.⁶ For this purpose, the line of research proposed by Sraffa in *Production of Commodities by Means of Commodities* becomes extremely important.⁷ In fact, Pasinetti generalizes the problems posed by Keynes into a multisectoral scheme, i.e., a multisectoral system of circular production in which the goods produced also constitute the factors of production necessary for the continuation of production, and he succeeds in highlighting two characteristics of industrial societies in particular:

1. The demand for consumption and investment is limited by the technological possibilities of the economic system;
2. Demand must be high enough to require full utilization of the existing supply of goods and full employment of the available labour force.

The most straightforward method of acquainting students with the multisectoral scheme and deducing from it “the macroeconomic effective demand condition for full employment” is by presenting Pasinetti’s proposed two-sector model in his essay about Joan Robinson (Pasinetti, 2005). Suppose a two-sector (closed) growing economic system. At any given time, we have a certain number of employees, $N(t)$, and a certain level of technical knowledge, described here by the levels of the labour coefficients, $l_i(t)$, and the capital goods coefficients, $k_i(t)$, where $i = 1, 2$. The ratios of capital and labour coefficients are complementary. Let us assume, for the sake of simplicity, that all capital is fully utilized during a given period and subsequently requires replacement. The level of per capita consumption demand is expressed by $c_i(t)$. By defining $x_i(t)$ as the total amount of good i produced, we can model the physical economic system as a homogeneous system of linear equations, using closed input-output analysis. No proportional growth assumptions are required. At the end of each period goods are demanded and producers supply precisely what is demanded. Let us suppose that good 1 is a “pure” consumption good, while good 2 is a “pure” intermediate good. As a result, we have:

$$\begin{bmatrix} 1 & 0 & -c_1(t) \\ -k_1(t) & 1 - k_2(t) & 0 \\ -l_1(t) & -l_2(t) & 1 \end{bmatrix} \begin{bmatrix} x_1(t) \\ x_2(t) \\ N(t) \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$$

Thus, while $c_i(t)$ is positive, $-c_2(t)$ is zero. The above system shows that the production process is driven by the principle of effective demand. As a homogenous linear system, it has non-trivial solutions only if the determinant of the coefficient matrix is null:

$$c_1(t)k_2(t)l_1(t) - c_1(t)k_1(t)l_2(t) - c_1(t)l_1(t) - k_2(t) + 1 = 0$$

With easy algebra, it becomes:

⁶ See, for instance, Pasinetti (2001, p. 385).

⁷ It should be noted, as Garbellini (2023) accurately recalls, that Pasinetti did not develop the theory from Sraffa – whom he had met before the 1960s, but with whom he first discussed only the mathematical formulation of Ricardo’s model – but on the basis of the Cambridge macrodynamic models of the 1950s and Leontief’s input-output schemes. However, in the preface to Pasinetti (1981) he writes that the publication of Sraffa’s book prompted him to rethink part of his doctoral thesis because *Production of Commodities by Means of Commodities* brought back the focus on production as a circular process, something he had deliberately excluded from his analysis, using the vertically integrated sectors. Furthermore, in Chapter VI of his book, Pasinetti explicitly acknowledges that both Leontief’s input-output scheme and Sraffa’s system can be seen as the static counterpart of his dynamic analysis, but he points out that the *Production of Commodities by Means of Commodities* scheme perhaps corresponds better than Leontief’s to the theoretical approach used in *Structural Change and Economic Growth*.

$$c_1(t)\{l_1(t)[1 - k_2(t)] + k_1(t)l_2(t)\} + k_2(t) = 1$$

Pasinetti called the equation “the macroeconomic effective demand condition for full employment”. This macroeconomic condition is mainly dependent on the demand for consumption goods.

However, since there is no reason to expect that all income will necessarily and fully be spent – in other words, there is no natural tendency for wages and profits to be converted into effective demand in perpetuity – there is also a need to identify institutional structures other than the market that will help guide the system toward macroeconomic equilibrium. This problem is not only at the level of income distribution. In fact, within each sector, two opposing tendencies will be constantly at work: a movement generated by technological evolution, acting on technical coefficients (which, contrary to Sraffa’s assumption, are not given), and a movement based on physical quantities, generated by effective demand, acting on per capita consumption. Moreover, there is no guarantee that full employment, once reached, will be maintained over time, especially in view of the effects of technological change, which renders some sectors obsolete and leads to the creation of sectors that did not exist before. “Here lies the crux and drama of a complex inherently structural instability, which is thus revealed to have sectoral origins, but whose effects are building up, inevitably, to affect dynamics of the economic system as a whole” (Pasinetti, 2007, p. 286). Economists cannot simply analyse the consequences of growth on fundamental economic quantities, such as consumption and investment, treating them as something that changes only in level (e.g., doubling or halving), but must look at the change over time in the composition of these quantities. They will therefore have to ask first of all: how have the consumer goods that make up aggregate consumption changed? How have the capital goods that make up aggregate investment changed? This is where the importance of structural economic dynamics lies.

3. Rethinking distribution of income and productivity

The role played by the distribution of income in the Pasinettian scheme of structural economic dynamics has nothing to do with calculating the specific contribution of each factor of production to the production of the good or service for which it is used.⁸ Instead, it can first be understood by recalling the theory of another Cambridge Keynesian: Nicholas Kaldor. According to Kaldor, once capital accumulation has absorbed all available labour, the rate of growth of the economic system is determined by the possibilities of increasing the labour force and technical knowledge. Profits are thus determined by the needs of accumulation required to sustain the increase in the working population and the increase in productivity:

This theory confirms the classical idea of a basic asymmetry among the factors of production and, as a consequence, of the distribution of income, but it reverses its direction. It is the category of profits that is determined in the first instance, by the requirements of the accumulation necessary to sustain the given growth of the working population and the given growth of productivity. The category of wages then absorbs all the ‘residual’. At the same time, Kaldor’s vision (unlike the Classical one) appears as surprisingly optimistic. Once the requirements of accumulation are satisfied, all increases in productivity (i.e. all the fruits of technical progress!) translate themselves

⁸ This is also due to the analytical weaknesses of the neoclassical theory of income distribution, highlighted by various scholars of the Cambridge school, including Pasinetti himself, in the wake of Sraffa (1960). On this point, see Pasinetti (2000) and the video interviews conducted by Nadia Garbellini in Ferguson (2016).

into an increase of wages, which over time will grow at exactly the same rate as productivity (Pasinetti, 2000, p. 397).

In the dynamic, multisectoral context proposed by Pasinetti, there will be as many profit rates as there are sectors.

The price system is determined only after identifying, at the sectoral level, the profit rates that guarantee growth with full employment and full utilization of productive capacity (what Pasinetti calls “natural” profit rates $\pi_i^* = g + r_i$, where i denotes the i^{th} sector, g the population growth rate, which is the same for all sectors, and r_i the growth rate of per capita demand for each consumer good). Then, having identified the profit rate of the system, wages appear as a residual. The implications of this reasoning for economic policy are revolutionary: the inappropriateness (as well as the illogicality) of negotiating wages by reference to marginal or average productivity calculated for individual categories of workers emerges:

To concentrate attention on physical productivities within a single sector or firm might in fact have had a lot of heuristic merit in an economic system of the pre-industrial type, where each labourer normally produces directly the major part of the goods which his family consumes. But in a modern economic system, such an approach becomes patently irrelevant: [...] in a highly specialised society, the physical productivity of any single worker (whether marginal or average) can only have a negligible influence on claims that refer to the economic system as a whole. Fundamentally, in a modern economic system, the distributive variables are *macro-economic concepts* (Pasinetti, 1981, p. 136).

This means that the wage question – in a growing economic system – should be approached by first considering what Pasinetti calls the “real wage rate”. This is not the marginal productivity of labour, i.e., a number of physical units of the good produced in the sector in which the worker actually works, but the basket of goods in physical terms on which the unit wage is actually spent. And this means taking into account institutional structures other than the market when dealing with the world of work:

There is an institutional necessity [...] of preventing the economic system from falling into a situation in which the competitive market-price mechanism acts on the wage rate in the same way as it acts on commodity prices. The truth is that labour could be traded as any other commodity only in a slave society. In any modern economic system, labour is not a commodity, precisely because institutions have been set up that not to allow labour to be traded as a commodity. [...] In the case of wages, we do not want a wage rate reflecting the cost of production of labour. We want a wage rate that gives each worker his or her share of national income (Pasinetti, 1993, pp. 127-128).

Although Pasinetti does not draw explicit economic policy implications from his analysis, it can be used to reflect about the minimum wage issue from a systemic perspective. Therefore, it seems to me that these considerations can also be useful in trying to understand the so-called “Great Resignation” phenomenon in a context of growing trade union weakness, as in both the US and Italy.⁹

⁹ The “Great Resignation” is a term used to describe the mass exodus of people from the US labour force that has occurred over the past two years (2021-2023). Anthony Klotz introduced the concept. in an interview with Bloomberg in May 2021: “The great resignation is coming– When there’s uncertainty, people tend to stay put, so there’s a backlog of resignations that didn’t happen last year. The numbers are multiplied by the many pandemic-related epiphanies – about family time, remote work, commuting, passion projects, life and death and what it all means – that can make people turn their backs on the 9-to-5 office grind”. His predictions have come true. See Cohen (2021). On the Italian case, see Coin (2023).

The increase in the purchasing power of wages – which should take account of the productivity gains obtained through accumulation – is not, in any case, a sufficient condition for maintaining full employment in the long term, since, in the absence of new goods to keep effective demand in tension, we would reach problems of market saturation, similar to those that contributed to the crisis of Fordism. One of the economic policy implications that arise from Pasinetti's structural dynamics scheme is the reduction of working hours.¹⁰ It is noteworthy that this economic policy proposition does not rely on moral considerations, which is the case for Keynes's *Economic Possibilities for Our Grandchildren* arguments. Instead, it is a necessity for pursuing the macroeconomic condition for the achievement of full employment:

4. The general principle of advantages in comparative productivity changes

The institutional changes necessary to maintain full employment and to protect workers from the imbalances generated by the underlying movements of economic systems are recurrent in the history of capitalism, but less so in the era of modern globalization.¹¹ Pasinetti is constantly concerned with international economic relations. In an effort to clarify the limits of Ricardian comparative advantage theory, he identifies not mere trade integration as the primary source of economic advantage between nations, but the acquisition of technical knowledge on which improvements in labour productivity depend. As is well-established, the fundamental principle of the Ricardian theory of comparative advantage is that there must exist a dissimilarity in the relative production costs of two goods in two countries in order for international trade to occur. Additionally, the terms of international trade must fall within the comparative costs but not be identical to either. If both conditions are met, each country will gain an advantage by focusing on producing the good in which it has a relatively greater advantage (or a relatively smaller disadvantage). In his work *Structural Change and Economic Growth*, Pasinetti demonstrates that, when two countries have different price structures over a period of time, the economic benefits of trade between them rely on productivity changes in the industries that each country specializes in, compared to productivity changes in other industries (Pasinetti, 1981, pp. 268ff.). Pasinetti has termed this phenomenon the “general principle of comparative-productivity changes advantage”. A 2007 paper co-authored with Gian Paolo Mariutti explains the principle in plainer terms. This text, which is also very effective for teaching purposes but unfortunately little known, is dedicated to the analysis of globalization and its critiques. It shows that, as trade integration becomes more impressive, the sources of knowledge production do not tend to globalize but rather become more concentrated in the more developed countries:

Here is the crucial point that traditional theory has failed to grasp [...]. The presence of technological learning in one country (let's say the developed one) – and at the same time its absence in another

¹⁰ See Keynes ([1930] 1933) and Lunghini and Gnesutta (1999). Lunghini, in particular, focuses on the reduction of working hours. However, as one of the referees pointed out to me, Pasinetti's theoretical analysis can also be used to argue for a reduction in working life, i.e., the number of years spent at work.

¹¹ In this context, I refer to a brief but important intervention: Pasinetti (2002), translated in the appendix. It is true – as one of the referees invited me to point out – that when Pasinetti addresses the issue of international economic relations in his books (Pasinetti, 1981, chapter XI, and 1993, chapter IX), he does so by referring to the natural system, i.e., by ignoring the institutional context, but it is interesting that in Pasinetti (2002) he derives practical implications from what he calls the key-concepts, i.e., the concepts resulting from the analysis of the natural system. For the discussion in this section, see in particular the third key-concept and the practical implication related to it in Pasinetti (2002), our English translation in the appendix.

country (let's say the poor one) – will lead to a further increase in productivity and thus in per capita income in the developed country. At the same time, it will leave productivity and income unchanged in the second country (the poor one). [...] The result will be that any increase in income due to increased technological learning in one country will remain within that country and not leak out at all. [...] Economic systems are closed to productivity increases that occur within each country. This is the crucial result of our argument. International trade will never be able to distribute productivity gains internationally within each country. [...] A country, and each individual within it, in order to be able to use the knowledge produced elsewhere in the world, must first be able to assimilate it (Pasinetti and Mariutti, 2007, pp. 260 and 271, our translation).

Here we see once again the importance of skill, dexterity and judgement, on which the father of political economy invited us to reflect. This is the same Adam Smith who, in his work, stresses the importance of public education for children.

5. Conclusions

All those who knew Luigi Lodovico Pasinetti will recall his reluctance to be interviewed or to enter the public debate to comment on current economic events.¹² However, in light of the rereading proposed here, it would be a mistake to think of Pasinetti as an economist who was inattentive to the political and social implications of his analyses. His civic passion, as is well known, arose in the face of what he emblematically called the myth (or folly) of the Maastricht parameters (Pasinetti, 1998).¹³ But there is much more, because in his thought – especially if one has the patience to fully understand what he is expressing through algebraic formulations – there is clearly an extremely firm political and moral position. It seems to me that it can be expressed with reference to the Italian Constitution, taking up a brief reflection by a master of the law: the sociality of the person is the dynamic fulcrum of society (Grossi, 2018, pp. 59-62). It follows that property, and in particular ownership of the means of production, is not only a right but also a source of responsibility towards society. This belief explicitly appears in the brief entry “Capital” for the *Dizionario di dottrina sociale della Chiesa*: the means of production “cannot be *possessed against labour*, they cannot even be *possessed for possession's sake*, because the only legitimate title to their possession – whether in the form of private ownership or in the form of public or collective ownership – is *that they should serve labour*”.¹⁴

Starting with the investment decisions of those who own the means of production, society is transformed, characterized by new individual and social needs, new difficulties and potential conflicts. If we want to avoid the withering away of civil society itself, we must equip ourselves with the institutions necessary to counteract the misery and alienation generated by structural economic dynamics: “Technical progress is not like a gift that can always be rejected as such. It is rather like a raging torrent that can be put to good use if it is properly channelled. Any failure

¹² The interviews available today concern the problem of research evaluation (Brancaccio and Garbellini, 2018) and more specific aspects of Pasinetti's research in the field of economic analysis (Ferguson, 2016). A notable exception is an interview on the contradictions of globalization, collected for the MicroMACRO programme by Fabrizio Fazioli (Swiss Italian-language radio and television) in 2001. The programme was available on the RSI website until 2010. Today it can be requested for private or educational use by writing to richiestaarchivi@rsi.ch.

¹³ For a long time, the Italian national press paid no attention to Pasinetti's scientifically well-founded denunciation, which showed an uncritical adherence to the Maastricht parameters. A notable exception was *il manifesto*; see Halevi (1998).

¹⁴ *Laborem Exercens*, Encyclical of Pope John Paul II on Human Work on the ninetieth anniversary of *Rerum Novarum* (quoted in Pasinetti, 2004; our English translation in the appendix; the English translation of the encyclical is the official translation approved by the Holy See).

in the channelling process can wreak havoc on existing structures, both natural and social. The ‘management’ of technological progress therefore requires an enormous amount of work from everyone, in a wide variety of fields. [...] More knowledge means more individual and social responsibility. If our society is to become more mature, it must also become more responsible. This is something of the challenge of our time: to ensure that technical progress also becomes social progress” (Pasinetti, 1985, p. 35, our translation).

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Appendix

A Structural Crisis¹⁵

LUIGI PASINETTI

This occasion reminds me of a personal event. This week, on 3 October, 40 years ago, I submitted the typescript of my Ph.D. thesis in Cambridge, England.

I still consider the contents of that dissertation (which was not published until 1981: *Structural Change and Economic Growth. A Theoretical Essay on the Dynamics of the Wealth of Nations*) as the main contribution of my studies. It deals with the long-run relationships between economic growth and structural change: in prices, output, demand and employment.

The inextricable link between economic growth and structural dynamics has since proved to be a phenomenon of increasing relevance, especially since the extraordinary accentuation of technological innovation in the second half of the 20th century. The standpoint of this research was essentially theoretical. But the present occasion invites me to take up the challenge of the facts and to consider at least some practical implications. What can the theory of structural dynamics tell us about where the economy is going today?

There are four key-concepts to which I would like to draw your attention.

First key-concept: Since the Industrial Revolution, the nature of the wealth of nations has changed profoundly. The wealth of nations has become less and less dependent on the stock of available resources and more and more dependent on the production flow of human activity.

In other words, in the modern world, wealth is not so much the stock of resources inherited or accumulated in the past, but the current flow of goods and services – the fruit of the continuous, organized process of production.

Practical Implication: This change in the nature of the wealth of nations normally leads to a contrast between rich and poor countries – as in all national accounts statistics – not in terms of resource endowments, but in terms of per capita income, i.e. national product per person. As economic development progresses, we see that the correlation between the two concepts of wealth is by no means a matter of course.

Indeed, in some cases it seems to have disappeared. The most striking example today is that of Argentina, which has everything in the way of natural resources (including oil) and has fallen into complete chaos in terms of production possibilities, employment and international competitiveness.

Second key-concept: The causes of the wealth of nations have changed, with not only nature but also the factors affecting productive activity playing a role, especially labour productivity - the “skill, dexterity and judgement with which labour is generally applied”, as described by Smith.

Human learning emerges as a central factor in this regard.

The ability to acquire new knowledge and apply it to production processes is essential for improving existing techniques and discovering new ones.

¹⁵ Speech at the Saint Vincent Economy Forum, 18-19 October 2002 (our translation).

This includes perfecting the production of traditional goods and inventing previously unproduced ones. Education, learning through practical experience, and training are crucial activities for a country to become rich in technical knowledge.

Practical Implication: Only knowledge and learning, which are closely tied to the degree of education in modern societies, can account for the significant income disparities that have developed between rich and poor countries over the past century. No nation has achieved wealth solely through income without first achieving wealth through education (and therefore knowledge) in the decades prior. That is to say, one cannot achieve growth without prior knowledge.

Third key-concept: Modern economies are significantly closed with regard to productivity growth. Any productivity gains that a country generates remain within that particular country. The benefits gained from increased productivity stay within the country that achieves them. This occurs through a process that transfers the productivity increases backwards, increasing the remuneration of the factors of production within the country as opposed to reducing the price level and allowing for productivity benefits to flow out.

Practical Implication: Due to this closure, there are no alternate means of development that can replace domestic productivity advancements: neither natural resources, nor finance, nor even international trade. Recently, there has been significant importance placed on international trade as a contributor to economic development; however, the underlying reasons relating to its connection with development have yet to be comprehensively understood. The benefits of international trade do not stem mainly from the advantage of comparative cost inequalities, as has been traditionally argued, but instead primarily from trade openness serving as a potent tool for the propagation of scientific and technological knowledge. Knowledge, thanks to its characteristics as an intangible good that is both non-rival and non-exclusive, can spread without the countries of origin having to relinquish it. While we are seeing a significant globalization of markets for physical goods, there remains a lack of globalization when it comes to education and knowledge. Scientific research and the individuals driving it are heavily concentrated in wealthy nations.

Fourth key-concept: Economic systems must change their production structures and consumer patterns over time. Specifically, it's not just about production and price dynamics or individual consumption and investment trends. The combination of these factors is critical for economic growth opportunities. Over time, industries become technologically advanced and reach maximum saturation, also known as "Engel's law". However, due to technological innovations and shifts in demand, fresh and dynamic sectors are emerging while traditional sectors are declining.

Practical Implication: The existence of structural dynamics in development processes compels economic systems to evolve to achieve growth. Most importantly, the differing branches of production show continuous changes in their physical output and employment levels.

As an example, in Ethiopia, agriculture absorbs between 80% and 90% of the workforce despite low labour productivity. This is notable since a significant portion of the population is still facing hunger. In contrast, the agricultural sector in the United States of America only employs 2.5% of the labour force. This level of employment is adequate for ensuring the USA's self-sufficiency in agricultural production, but also contributes to overproduction problems. In the process of development, the shift of employment from one sector to another, after involving agriculture, inevitably involves industry and-after industry-comes to involve the tertiary

sector. Advanced nations are now classified as 'post-industrial' or advanced tertiary from a development standpoint. More than 70% of the workforce in North America and Western Europe are permanently employed in the service sector, based on an overall viewpoint rather than that of individual workers. The ongoing structural dynamics of a country imply that, to ensure continual development, it is essential to adjust the proportionate contribution of each productive sector. Refusing to acknowledge new industry sectors and favouring outdated ones will inevitably lead to failure.

Finally, I will examine the economic situation in Italy objectively. Where is our economy going?

The country's economic performance since the end of the 'Italian miracle' period in the 1960s, which was characterized by an impressive 6% growth rate, has been a far cry from its earlier success. There has been a significant change in Italy's economic dynamics.

When examining the data on actual annual growth rates of Italy's GDP per capita, measured in ten-year averages from 1970 to the present, a perplexing trend emerges.

The rates of increase in GDP per capita have steadily declined over the long term. During the 1970s, there was an approximately 3 1/2% increase in GDP per capita. In the following decade, this figure dropped to around 2 1/2%. By the 1990s, the increase had decreased further, to around 1 1/2%, and in the current era, the increase barely reaches half a percentage point.

It is important to note that the decline affects not only Italy but also other industrialized countries. Nevertheless, our performance has been below the average of economically developed countries since the 1970s. We have moved from a phase, until the 1970s, where we approached the richest countries, to a phase where we not only fail to approach them but also lose relative positions. Just recently (on 5 October), Antonio Fazio, the Governor of the Bank of Italy, stated in a speech at the Young Entrepreneurs Conference of Confindustria that industrial production in the 15 countries of the European Union increased by 14% in mid-2002 compared to the average level in 1995. In France, it increased by 17% and in Germany by 16%. Meanwhile, the United States experienced an increase of 23%. The Italian index indicates a 4% growth rate between the average of 1995 and the middle of this year, which is one-third less than the average development rate in Europe and less than one-fifth of the average development rate in the USA.

The decline in growth rates is commonly attributed to cyclical events such as the public accounts crisis, monetary turbulence in the early 1990s, the sacrifices made to join the European single currency in the late 1990s and, more recently, international terrorism, among other factors. Based on the above arguments, I believe that the Italian economy faces both cyclical problems like other economies and a real structural crisis.

In accordance with the key concepts discussed earlier, two pieces of evidence will be offered to support this argument. Firstly, Italy seems to lack in promoting human learning, which I have identified as the primary cause of modern nations' wealth. Although we have become a country with significant levels of schooling, the secondary and university education standards remain multiple points lower than those of economically advanced countries. For instance, in the 1970s, Italy had a secondary school enrolment rate slightly above 60% (the average among OECD nations surpassed 80%); and a university enrolment rate of 25% (a few percentage points below the OECD mean). Nonetheless, to this day, Italy has not yet managed to overcome its lag in secondary education; indeed, the country's faults in university education have further deteriorated. In the 1990s, Italy's secondary school enrolment rate reached 90%,

but the current OECD average is nearly 100%. During that same period, our university enrolment rate reached 40%, whereas the OECD average is over 60% and the rates of the United States and Canada are approaching 80%.

Further up the university ladder, the situation is even more troubling. PhD programmes in Italy are a recent addition and are still limited to a small fraction of graduates. Looking solely at scientific and technological knowledge, Italy occupies the bottom spot among OECD countries in terms of per capita expenditure on research and development. The only countries that fare worse are Spain, Portugal, and Greece. Interestingly, this figure would be even worse if we were only measuring R&D expenditure of the private sector. In these circumstances, it is unsurprising to discover that our country is almost entirely absent from the list of the most innovative countries when looking at the number of patents applied for.

Additionally, Italy appears to be lagging significantly in its evolution towards a tertiary-type economy. In the industries that comprise the foundation of the 'new economy', Italy has either not entered or failed to maintain a presence.

Consider the recent setbacks in the electronics and computer industry, alongside our lack of competitiveness in fields such as computer technology, biotechnology, and, with some exceptions, pharmaceuticals and telecommunications. These are all heavily reliant on scientific research and development, which accounts for a significant portion of total assets and is critical in determining enterprise competitiveness. Until recently, currency devaluation was a practicable solution to restoring lost competitiveness and promoting exports when lacking technological edge. Domestic market constraints were imposed to protect against international competition. However, with the arrival of the euro and European regulation, such measures have become obsolete.

The time has come to acknowledge that becoming an economically advanced nation requires first becoming a cognitively literate one.

Capital¹⁶

LUIGI LODOVICO PASINETTI

1. Introduction

The appearance of capital on the economic scene of industrial production and social relations is one of the “new things” that formed the basis of the Church’s first social encyclical: Leo XIII’s *Rerum Novarum*.

For millennia, the process of producing the goods needed by humanity had been carried out with the use of labour and natural resources (essentially the cultivation of the land). With the industrial revolution, at the end of the 18th century and beginning of the 19th century, a new factor of production appeared on the economic scene: capital, which was added to labour and land. “Capital” is a collective term for a set of material goods produced not for immediate consumption but for instrumental use, i.e., to be used in the production process, together with labour and natural resources, to obtain the final consumer goods and to obtain the capital goods themselves (some of which need to be replaced periodically and usually also to be expanded or, as the case may be, accumulated).

The capitalist transformation of the production process was accompanied by the invention of machines no longer powered by human or animal energy, but by a whole series of energy sources that were gradually being discovered (the steam engine, electricity, the internal combustion engine, nuclear energy, etc.). This led to an enormous increase in total production, but not to a fair or reasonable distribution of the resulting benefits to all participants in production. There was a concentration of the increase in wealth in the hands of small groups as a result of a radical change in production and social relations brought about by the construction of factories and the separation of the workplace from the family.

One of the consequences of this was the formation of social classes in opposition to each other: in particular – in its most extreme forms – the class of “capitalists”, who directly or indirectly organize and own the means of production, i.e., capital, and the class of “proletarians”, who do not own the means of production and have only the possibility of offering their labour in exchange for monetary consideration (the wage), with the obligation of going to the factories or offices at predetermined times and in a subordinate position. In the beginning, working conditions were indeed everywhere very precarious, working hours very long and wages at the subsistence level. All this led to a clash between capital and labour which characterized the industrialized and industrialising countries throughout the 19th and even the 20th century, albeit with different intensities from country to country and with a lessening or acceleration over time.

¹⁶ Our translation of the entry “Capitale” in Centro di Ateneo per la Dottrina Sociale della Chiesa (ed.) (2004), *Dizionario di dottrina sociale della Chiesa. Scienze sociali e Magistero*, Milano: Vita e Pensiero. All English translations of the encyclicals quoted are the official translations approved by the Holy See. The original Italian entry is available at: https://www.dizionariodottrinasociale.it/Voci_fondamentali/Capitale.html

2. The social function of capital

It is important to realize that the existence, and therefore the accumulation, of capital in the physical sense has become an absolute necessity in the production processes of the industrialized world.

Without capital there can be no competitive production, and therefore without capital there can be no corresponding jobs. Capital and labour complement each other. But they cannot be put on the same level. As John Paul II rightly observed, “Everything contained in the concept of capital in the strict sense is only a collection of things. Man, as the subject of work, and independently of the work that he does-man alone is a person” (LE, 12). But another important consequence follows: if capital goods, i.e. capital, are so important in the production process, they need a special status. They cannot be considered in the same way as consumer goods. Unlike the latter, whose availability can also be left to the discretion of the owner, production goods perform a relevant function for society as a whole. They provide jobs and thus fulfil a social function that society as such cannot ignore (on the different social consequences of the accumulation of production and consumption goods, see Pasinetti, 1983). Herein lies the tricky, or perhaps we could say the crucial, point of the whole question of the relationship between capital and labour.

For the sake of completeness, it is worth mentioning other meanings in which the term capital is used in common parlance: that of the assets at the disposal of a person or a social group, and that of financial capital, which expresses the total commercial value. In this lemma, we will deal only with “physical” capital, understood as a factor of production.

3. Ownership of the means of production

There is no doubt that the delicate problem that immediately arises when we speak of the social function of capital is that of the right of ownership of the means of production. While it is not very difficult to argue in favour of private ownership of consumer goods, the question of private ownership of capital goods, i.e., of capital as a factor of production, is much more complex. There is no – or not yet – general consensus among scholars (economists, sociologists, lawyers, philosophers) on this point. What is the ideal form (or forms) of ownership of productive assets remains a highly controversial question. The reality and practice of the last two centuries have not yet provided us with definitive and indisputable solutions, although historical events have taught us a great deal.

During the 20th century, we have witnessed the practical implementation of radically opposite solutions.

On the one hand, communist countries practised (or were supposed to practise) collective ownership – or rather state ownership – of capital; on the other hand, market-economy countries experimented, at least initially, with extremely liberal forms of private ownership of capital. But conflicts, class struggles, oppositions, even violent ones, and failures, gradually led to the experimentation of weaker forms, or rather mixed forms, of private and public ownership, in different proportions and with different modalities, from country to country and over time.

The 1980s also saw a flourishing of economic literature (cf. Weitzman, 1984; Meade, 1989) proposing new and original forms of cooperation between capital and labour, involving the

participation of workers both in the risks of organising production (with the exception of guaranteeing a minimum wage) and in the benefits of productivity gains and business success. It is also worth mentioning the many recent economic studies that tend to extend the analysis beyond physical capital. Some economists have introduced the term “human capital”.

The term is a misnomer, but the underlying concept is fundamental. It must be recognized that technical knowledge is the new (immaterial) form that the wealth of nations takes (cf. Pasinetti, 1984, pp. 312-315, and 1993, pp. 265-267). Many of these themes can be found in more recent social encyclicals. *Laborem Exercens* encourages “proposals for joint ownership of the means of work, sharing by the workers in the management and/or profits of businesses, so-called shareholding by labour, etc.” (LE, 14); it even goes so far as to call for “various adaptations in the sphere of the right to ownership of the means of production” (ibid.). *Centesimus Annus* indicated “a wide range of *opportunities for commitment and effort* [italics in the original] in the name of justice on the part of trade unions and other workers’ organizations [...] against an economic system, if the latter is understood as a method of upholding the absolute predominance of capital, the possession of the means of production and of the land, in contrast to the free and personal nature of human work” (CA, 35). Again, in this last encyclical it is stated that “In our time, in particular, there exists another form of ownership [...] *the possession of know-how, technology and skill*. The wealth of the industrialized nations is based much more on this kind of ownership than on natural resources” (ibid., 32).

4. The social doctrine of the Church

In its teaching on capital, as it appears in the social encyclicals, the Church’s thought has become increasingly analytical and reasoned: we will try to list briefly the main points that distinguish it:

(a) Leo XIII, for the first time in the Church’s history, intervened in social matters, noting that an ethically abnormal “distributive injustice” of enormous proportions had occurred, namely “the enormous fortunes of some few individuals, and the utter poverty of the masses” (RN, 1; cf. also QA, 103-108). This concept is taken up by John Paul II, who insists on the “great *conflict* that in the age of, and together with, industrial development emerged *between ‘capital’ and ‘labour’*, that is to say between the small but highly influential group of entrepreneurs, owners or holders of the means of production, and the broader multitude of people who lacked these means and who shared in the process of production solely by their labour” (LE, 11).

b) The condemnation of historical materialism and communism, and above all of the “dictatorship of the proletariat” (ibid., 14), logically implied the rejection of all revolutionary and subversive intentions and the recognition of private property, “even when it is a question of the means of production” (ibid.), and thus of capital.

c) However, it strongly reaffirms “*the priority of human labour over what in the course of time we have grown accustomed to calling capital*” (ibid., 12), going so far as to advocate “the policy of bringing the work to the workers, wherever possible, rather than bringing workers to the scene of the work” (PT, 102). It is also explicitly and repeatedly mentioned that the ownership of capital must have a social function, stressing that “merely taking these means of production (capital) out of the hands of their private owners is not enough to ensure their satisfactory socialization. They cease to be the property of a certain social group, namely the private owners, and become the property of organized society, coming under the

administration and direct control of another group of people". In short, "merely converting the means of production into State property in the collectivist system is by no means equivalent to 'socializing' that property" (LE, 14).

In conclusion, the Church's social doctrine recognizes the importance, even the necessity, of capital, "*the result of the historical heritage of human labour*" (ibid., 12), and its complementarity with it. At the same time, however, it indicates the moral criteria of its justification and legitimacy: the means of production "cannot be *possessed against labour*, they cannot even be *possessed for possession's sake*, because the only legitimate title to their possession – whether in the form of private ownership or in the form of public or collective ownership – is *that they should serve labour*" (ibid., 14). This sensitivity to the human person, which leads to the affirmation of the priority of work over capital, is the characteristic that most distinguishes the Church's social doctrine from both the "individualist" and "collectivist" visions.

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