

THE THEORY OF VALUE AND THE FOUNDATIONS OF ECONOMIC POLICY: *IN MEMORIAM PIERANGELO GAREGNANI**

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Key elements in the life's work of Pierangelo Garegnani (9th August 1930–14th October 2011) derive from the analytical results first developed in his 1958 PhD dissertation at Cambridge University. The critique of Walras's theory of capital articulated in the dissertation was extended in later years to the identification of the implications of the change in the concept of equilibrium in the works of Hicks and Debreu. Garegnani's work on re-switching in the 1960s provided the foundation for an important dissection of theories of output and employment. Combining these contributions with the classical approach to the theory of value and distribution results in turn results in important insights into the relationship between theory and the development of institutions, and hence into economic policy-making.

It is no exaggeration to say that my encounter with Piero Garegnani's 1958 Ph.D. dissertation in the Cambridge University Library in 1970 shaped my entire view of what economics is about, how it should be done, and what it is for. I came to understand Piero Sraffa and Keynes through the lens of Garegnani. And, as a result of many, often difficult, discussions with Garegnani, I began to clarify and understand my own thinking on economics. In this lecture, I hope to convey some of my initial excitement on reading that Ph.D. dissertation, published in Italian as *Il Capitale nelle Teorie della Distribuzione* (1960). And 40 years on, I will attempt to place the arguments of the Ph.D. dissertation in the context of Piero's later work, and, on a topic that may surprise some of you, in the context of economic policy. After all, economics is not solely a mental exercise, like pure mathematics or chess. Economics is meant to be useful. In developing the argument, I will occasionally identify points at which I disagree with Garegnani. When I first started putting this lecture together I felt a little guilty about this. Am I taking advantage of the fact that Piero is not here, knowing, that if he were here, I would have to defend myself against the toughest

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imaginable examination of the logic of my arguments? I do not think so. I know that Piero liked nothing better than a serious argument about economics. And I am unembarrassed about being critical, because it is Piero's own work that forms the starting point of my criticism. As Sir Isaac Newton famously wrote: 'If I have seen further it is by standing on the shoulders of Giants'.¹

I. WHAT ECONOMICS IS ABOUT?

At the core of any analysis of capitalism, of market economies, must be an understanding of the role of prices. In an economy which operates according to a generalised process of exchange, the solution of the economic problems of production, distribution and expenditure must involve prices. Without a theory of value there is no theory of capitalism.

1.a Normal prices

It was, I believe, the supreme achievement of Adam Smith to capture the problem so precisely in the dual concepts of natural price and market price. Smith defined what economics, or at least an important part of economics, was to be about.

Natural price is defined by Smith as 'When the price of any commodity is neither more nor less than what is sufficient to pay the rent of the land, the wages of the labour, and the profits of the stock employed in raising, preparing and bringing it to market, according to their natural rates' (Smith, 1776, p. 62). In other words, it is the price that will tend to be established by the general process of competition that characterises market capitalism.

The market price is a straightforward empirical statement of what is: '... the actual price at which any commodity is commonly sold is called its market price. It may either be above or below, or exactly the same with its natural price' (Smith, 1776, p. 63).

And crucially, 'The natural price, therefore, is as it were, the central price, to which the prices of all commodities are continually gravitating. Different accidents may sometimes keep them suspended a good deal above it, and sometimes force them down even somewhat below it. But whatever may be the obstacles which hinder them from settling in this center of repose and continuance; they are constantly tending towards it' (Smith, 1776, p. 65).

All this is, I am sure, very familiar to this audience. But I want to highlight a little emphasised characteristic of Smith's construction: the natural price is defined without reference to any theory of how that price might be determined. Smith's definition of natural price is not a theory of value. It is the specification of what the theory of value is to determine.²

¹ The origin of this metaphor is attributed to Bernard of Chartres (fl.1120), see Merton (1965).

² Treating the definition of natural price as if it were a theory of price, determined by 'adding-up' its components, wages, profits and rents, was the characteristic of those who Marx labelled as 'vulgar

1.b Object and theory

Garegnani identified Smith's approach (the 'long-period method' as it was labelled post-Marshall) as 'what has long been the accepted method in the theory of value and distribution'. This was in his 1976 essay *On a change in the notion of equilibrium in recent work on value and distribution*, in which he contrasted Smith's 'method' with the development of the concepts of short-period and intertemporal equilibrium by Hicks and Debreu.

Garegnani was the first to comprehend the profound significance of this change in the concept of equilibrium. He pointed out that the weakness of the short-period equilibrium was that it

cannot be determined independently of the changes it will undergo over time' so that 'even if this equilibrium could be formally shown to be stable that same impermanence of causes which ... imposed consideration of changes over time, would seem to prevent it from being conceived as a centre of gravitation of the economic system: the forces governing it would lack the persistence necessary to distinguish them from those other accidental forces which, at any given time, are likely to keep the economy out of this short-period equilibrium' (Garegnani, 1976, pp. 37–38).

I would like to suggest that Garegnani could and should have gone further, building on his distinction between 'method' and 'theory'.

As noted already, natural prices (or a long-period equilibrium) can be defined without reference to any theory of its determination. The short-period equilibrium, or the intertemporal equilibrium of Arrow and Debreu, can only be defined in terms of the theory which is to determine it.

It might be argued that the Arrow–Debreu equilibrium is simply 'market clearing'. But that is no distinction, since the long-period position is also 'market clearing'. The Arrow–Debreu equilibrium is characterised by a specific form of market clearing, i.e. being the position when all individuals maximise utility over a given time-horizon subject to given constraints of endowment and technology, with competition being presumed to equalise rentals on all inputs, but does not equalise the rate of profit on all reproducible inputs. You cannot write down what an intertemporal equilibrium is without deploying the full data of neoclassical theory.

An analogy might be with the earth's gravity. What is to be explained is that an object in a vacuum at the equator falls towards the earth at a rate which accelerates at 9.81 metres per second. That is what is to be explained. The explanation might be that there is a huge invisible dragon that pushes objects toward the earth. Or the explanation might be found in Isaac Newton's Law of Universal Gravitation. Both of these theories are independent of the object that is to be explained.

The intertemporal equilibrium is not an object of analysis; it is not a statement of what is to be determined. It is simply the name attached to the solution of a set of equations. Modify the equations—say by working with expected prices rather than a

economists', unable to distinguish between 'appearances' and 'the real relations of production' (Garegnani, 1984, pp. 303–304).

full set of futures markets—and a new ‘equilibrium’ emerges as the solution of the new equations. It is thus quite different from Smith’s ‘market price’, a concept rooted in concrete, complex reality—a map on the scale of one-to-one.

The great strength of Smith’s concept of natural price is that he defined the object that it was the task of *any* theory of value and distribution to explain. Short-period or intertemporal equilibrium cannot be defined separately from the theory that purports to explain it. Smith defined the key question economics was called upon to answer, and in the 1976 article Garegnani revealed to us how neoclassical economists, unable to answer Smith’s question, had simply changed the question.

II. HOW SHOULD ECONOMICS BE DONE?

When Garegnani wrote his Ph.D. dissertation, the long-period method (or what I will refer to in the rest of this lecture as the method of ‘normal prices’ and ‘normal outputs’) did not seem to be in dispute. It dominated economic discourse. Even Walras’s theory of capital was devoted to an attempt to determine the uniform rate of net income as Walras called it, i.e. the normal rate of profit.

In the dissertation Garegnani showed how economics should be done.

First, he specified the problem clearly: the determination of natural/normal prices, i.e. the solution to the problem of value and distribution.

Secondly, he clarified the structure of the competing theories, classical and neo-classical, by defining the *data* of the theory, i.e. the propositions taken as given. In the case of classical theory these were the social product (its size and composition) the technique or techniques of reproduction and (sometimes) the real wage. In the case of neoclassical theory the data were preferences, endowments, and the technology (constrained to constant returns to scale by the requirements of perfect competition).

Thirdly, he defined the analytical problems faced within each theoretical construct in terms of measurement: in classical theory measurement of the social product independently of its distribution; in neoclassical theory the measurement of the endowment of reproducible means of production in a manner compatible with the determination of normal prices, i.e. with a uniform rate of profit on all capital goods.

I thought then, and I am even more convinced now, that this clear structure was not simply a fundamental clarification, but was the key to the success of the whole dissertation. Once the shape of the argument had been defined the results followed with remorseless logic. And it was remorseless logic that Garegnani applied.

2.a Walras’s theory of capital

I will return to the structure of classical theory in a moment, but first I want to deal with what I consider to be the major achievement of the second half of the dissertation, the critique of Walras’s theory of capital.

In the preface of the dissertation, Garegnani defined ‘the ... approach ... which has been dominant in recent economic thought: it centres on the concept of marginal productivity of homogeneous “factors of production” and makes of the theory of distribution an application of a general theory of value’ (Garegnani, 1958, p. 1).

But this was not the case in Walras’s treatment of capital. For Walras the endowment of capital was a list of capital goods, each specified, as Wicksell put it, ‘in their own technical units’.³ And with respect to the determination of the ‘rate of net income’ there was no ‘marginal productivity of homogeneous factors of production’. Instead there were demands for individual capital goods.

Garegnani demonstrated that this method of measuring the endowment of reproducible means of production was incompatible with the solution of Walras’s equations. Walras’s equations are inconsistent (Garegnani, 1958, Part II, chapters 2 and 3; Eatwell, 1987; Garegnani, 2008a). And it was the attempt to evade this inconsistency, as he was to argue later, that led to the change in the notion of equilibrium in Walrasian analysis, and the abandonment of efforts to determine long-run equilibrium. Indeed, it is obvious that if the condition of a uniform rate of profit is imposed on an Arrow–Debreu model, then the model is rendered inconsistent—and the inconsistency can only be resolved by specifying the endowment of capital goods as a single amount of value (Hahn, 1982; Eatwell & Milgate, 1999).

2.b Re-switching

However, it was not Walrasian theory, but the problem of the demand curve for capital as it emerged in the re-switching debate that was to preoccupy Garegnani for the next decade, culminating in his contribution to the *Quarterly Journal of Economics* Symposium on Paradoxes in Capital Theory (1966) and his article *Heterogeneous capital, the production function and the theory of distribution* (1970), which contained the triumphant demonstration of the failure of Samuelson’s surrogate production function (Samuelson, 1962). (As Samuelson noted in his original article Garegnani had warned him of the flaw in his argument. It is a mystery as to why Samuelson went on to publish an article he knew was seriously flawed.)

From then on, Garegnani placed the issue of a well-behaved demand curve for capital at the centre of his critique of neoclassical theory—even in his approach to intertemporal general equilibrium. For example, in the article *Savings, investment and capital in a system of general intertemporal equilibrium* (2000), he constructs the ex

³ Wicksell (1901, p. 149) wrote: ‘Whereas labour and land are measured each in terms of its own technical unit (e.g. working days or months, acre per annum) capital, on the other hand, as we have already shown, is reckoned, in common parlance, as a sum of *exchange value*—whether in money or as an average of products. In other words, each particular capital good is measured by a unit extraneous to itself. However good the practical reasons for this may be, it is a theoretical anomaly which disturbs the correspondence which would otherwise exist between all factors of production ... If capital also were to be measured in technical units, the defect would be remedied and the correspondence would be complete. But, in that case, productive capital would have to be distributed into as many categories as there are kinds of tools, machinery, and materials etc., and a unified treatment of the role of capital would be impossible’.

post savings and investment schedules from the equilibrium prices and quantities defined by the solution of the intertemporal equilibrium. The resultant demand (investment) and supply (savings) schedules display the familiar results of re-switching and reverse capital deepening. The reason why, as Garegnani points out, is that:

the roots of reverse capital deepening, as well as of the re-switching of techniques, lie in the effect of changes in distribution (rate of profits) upon the *relative prices* of the alternative sorts of capital goods required in the processes of production that are being compared. . . . In the traditional, non-intertemporal setting, it is the changing relative price of two such sets of capital goods that can make a more 'capital-intensive' technique become more profitable . . . as the interest rate rises. And it is that same change in the relative value of the alternative sets of capital goods that can bring about 'reswitching' among alternative techniques. Now the same variability of the relative price of alternative sets of capital goods is clearly also present in an intertemporal setting. (2000, p. 433)

What is the significance of this result? The original demonstration of re-switching undermined the credibility of the existence of 'parables' based on the presumption of a given amount of value capital as part of the data of the analysis, and of any attempt to determine the existence of a long-period position via a 'well-behaved' demand curve for capital. But in this later critique of the intertemporal version the existence of equilibrium is conceded. The 'variability of the relative price of alternative sets of capital goods' raises questions of multiple equilibria, and of the stability of the system, *but not of existence*.

I believe that Garegnani is here conceding far too much ground, for three reasons:

First, his approach gives some legitimacy to the very concept of intertemporal equilibrium that I believe to be unwarranted. The fact that an intertemporal equilibrium cannot be defined other than as the solution of a specified neoclassical model, and that model is incapable of determining normal prices, renders the very concept trivial.

Secondly, as Garegnani himself pointed out in the article *On a change in the notion of equilibrium*, the very idea of stability of an intertemporal equilibrium is rather odd, since any disturbance from equilibrium will not bring into play forces that tend to restore it, but instead will simply define a new intertemporal path.

Thirdly, the fact that intertemporal equilibria are typically unstable has already been conceded by neoclassical economists. The so-called Sonnenschein–Mantel–Debreu theorem demonstrates that well-behaved micro foundations, necessary for the proof of the existence of intertemporal equilibrium, may be associated with *any* arbitrary market aggregate excess demand function—such as the savings and investment functions constructed by Garegnani – thus effectively ruling out the possibility of uniqueness and stability (Sonnenschein, 1973; Debreu, 1974; Mantel, 1974; see also Rizvi, 2006). It has been concluded that 'every theorist who wants to argue that a change in some price variable (a wage, interest or exchange rate, for example) affects a corresponding aggregate in a definite direction cannot base this argument on general equilibrium theory' (Rizvi, 1994, p. 363).

Of course, most neoclassical theorists attribute this inability to wealth effects, arising from changes in expenditure patterns due to the revaluation of endowments. So Garegnani's demonstration that the revaluations of reproducible means of production are also present is undoubtedly a valuable insight. But the problem with neoclassical theory is not re-switching. The problem is that it is impossible to write down the data of neoclassical theory in a manner that is consistent with the determination of normal prices. Re-switching is a manifestation of this underlying problem. It is not itself the problem.

In his talk to the American Economic Association in January 2009, Garegnani seemed to take both positions. On the one hand, harking back to problems re-switching, he argued that 'the implications of the inconsistency of that notion of capital—the same implications which enforced the abandonment of the traditional analysis in pure theory—are still there to be faced' in intertemporal analysis (Garegnani, 2008b, p. 26). But on the other hand, he argued that 'In fact the essence of the neoclassical problem of capital is not aggregation versus general equilibrium, but, if anything, one about *two kinds of general equilibria*: the traditional one based on normal positions, exemplified by, say, Wicksell (1906), or even by Walras (as far as his original intentions went) versus the Hicksian one that renounces such positions in the attempt to avoid the single magnitude' (Garegnani, 2008b, pp. 23–24).

The latter proposition is surely the more powerful.

2.c Keynes's 'General Theory'

However, despite my reservations about his focus on re-switching, I must concede that the difficulties involved in constructing a 'well-behaved' demand function for capital were deployed by Garegnani to devastating effect in his review of macro-economic theories, *Note su consumi, investimenti e domanda effettiva* (1964–1965; 1978–79).

The central argument here is straightforward: in neoclassical theory the determination of equilibrium prices and equilibrium quantities are one and the same. Hence failings in the theory of value and distribution will be mirrored in the theory of output and employment, i.e. in the theory of effective demand. In neoclassical theory, the level of effective demand is adjusted to the supplies of factors via the price mechanism, by the relationship between the supply and demand functions derived from neoclassical data. However, once the deficiencies in the neoclassical theory of the rate of interest are understood, then the price mechanism is not available for this task in a theory of investment. The problem of the theory of the level of employment is not an issue of stability, but of existence.

More specifically, Garegnani points out that Keynes's assumption of a 'well-behaved' marginal productivity schedule, the marginal efficiency of capital, imported into his analysis an unwarranted element of neoclassical reasoning that threatened to undermine his whole thesis. Once Keynes had conceded the existence of a well-

behaved function there was no reason why the rate of interest should not gravitate to that level which would result in a rate of investment sufficient to generate a full-employment level of effective demand.

To defend his argument against this negative conclusion, and prevent such gravitation, Keynes deployed the theory of liquidity preference to determine a 'monetary' rate of interest that would not gravitate to the full-employment level:

... in the absence of money and in the absence – we must also suppose – of any other commodity with the assumed characteristics of money, the rates of interest would only reach equilibrium when there is full employment. (Keynes, 1936, p. 235).

This is very weak indeed, and it can be no surprise that it was not long before Keynes's argument was seen as just a special case of neoclassical analysis—simply a function of factors such as sticky money wages, sticky interest rates or other imperfections that explain a less than full-employment equilibrium as being due to the presence of imperfections of one sort or another. And it was equally not a surprise that these imperfections should be confined to a category labelled 'short-run', with the long-run or normal position of the economy being that of market-clearing full employment.

In identifying the strengths and weaknesses of Keynes's argument Garegnani clarified the importance of the *General Theory* by separating the positive component of Keynes's argument—the principle of effective demand which may be deemed a success; from the negative component, i.e. the critique of the neoclassical theory of employment—which was not only a failure, but also led inexorably to the later argument that the unemployment arose because of the presence of imperfections. Indeed, this 'imperfektionist' interpretation of Keynes is still prevalent even amongst economists who regard themselves as 'Keynesian'.⁴

Once it is recognised that the failure of neoclassical theory, in all its versions, is at one and the same time a failure of the theory of value and distribution *and* of the theory of employment, then the ground is left clear for the development of Keynes's positive theory, and perhaps, its alignment with the positive achievements of classical value theory that Garegnani had outlined in the first part of his dissertation and developed in successive papers.

2.d Normal output

It is to this issue, the relationship between the classical theory of value and distribution and Keynes's principle of effective demand that I now wish to turn.

⁴ For example, both Paul Krugman and Joseph Stiglitz are powerful advocates of Keynesian policies. Yet Paul Krugman has written '... in principle, shortfalls in overall demand would cure themselves if only wages and prices fell rapidly in the face of unemployment. [But] in reality prices don't fall quickly in the face of recession, but economists have been unable to agree about exactly why' (Krugman, 2008, pp. 182–183). Or see Stiglitz (2010) chapter 9, 'Reforming Economics'. Stiglitz's central argument can be summed up as 'With perfect markets (including perfect information) there was always full employment; with imperfect information, there could be unemployment' (p. 243).

Garegnani presented the generic classical theory of value and distribution as a *core*, in which the given size and composition of the physical social product, the given conditions of reproduction and the given real wage determined the magnitude of the surplus, which, in a market economy, will be manifest as the rate of profit, and, where appropriate, rents. The forces that determine the given magnitudes and, indeed, any interactions between them, 'were left to be studied outside the core' (Garegnani, 1984, p. 207).

Leaving aside the question of the real wage, with respect to the physical social product for the classical economists 'the circumstances that were seen to determine it ... [were] ... the accumulation of capital and the technical conditions of production' (Garegnani, 1984, p. 296). But of course, for the classical economists, savings are investment, and 'demand is only limited by production' (Ricardo, 1821, p. 290), so accumulation and technique are indeed sufficient determinants of the normal level of output *at any particular time*. However, once the inadequacy of Ricardo's position is recognised, and the role of effective demand in the determination of output is included in the analysis, the question arises of the relationship between the determination of normal prices in the core, and of Keynes's 'positive' analysis of output and employment.

Garegnani was uncharacteristically ambivalent on the relationship between normal prices and the principle of effective demand, often characterising Keynes's analysis as 'short-period'. He argues, for example, that the confinement to the short-period of an analysis that Keynes thought had implications going far beyond it, had the main role of providing him with a provisional way out of the conflict between his 'initial novelty' and the dominant theory of distribution (Garegnani, 1976, p. 41). But he also refers to Keynes's basic proposition (that it is variation level of incomes which ensures equality between saving and investment) as being 'not necessarily confined to the short-period' (1976, p. 40). Now which is it? Is Keynes confined to the short-period or not?

It is certainly true that Keynes himself believed that his theory of output had implications far beyond the short-period. He argued that his theory determined a centre of gravitation: 'we oscillate, avoiding the gravest extremes of fluctuations in employment and prices in both directions, round an intermediate position appreciably below full employment and appreciably above the minimum employment a decline below which would endanger life' (Keynes, 1936, p. 254). The language is clearly reminiscent of Smith's 'centre of gravitation'. Keynes is suggesting that his theory defines the normal positions of the economy: 'the mean position determined by "natural" tendencies, namely by those tendencies which are likely to persist' (p. 254).

Now if Keynes has indeed established a long-run or normal theory of output in which labour, and perhaps other means of production, are not fully utilised and not free goods, then that theory would necessarily be incompatible with neoclassical equilibrium.

But what is its relationship with classical analysis? If the classical approach to the determination of normal prices is to be relevant within the Keynesian context of a

less than full-employment 'equilibrium', to what extent is it presumed that productive capacity is adjusted to demand, i.e. fully utilised? Does the very definition of normal price presuppose that capacity is fully utilised, hence driving a wedge between the concept of normal price and Keynes's theory of output?

The answer to the conundrum rests in the relationship between the concept of normal price and two empirical characteristics of price formation:

First, as Garegnani argued, the changes in the forces that determine normal prices 'if continuous, would be sufficiently slow as to not endanger the gravitation toward the (slowly moving) long-period values. That same persistence would ensure that, should the changes be rapid, they would be once-for-all changes, and that, after a period of transition, gravitation to the new long-period values would again assert itself' (Garegnani, 1976, p. 28).

It might be reasonably assumed that the conditions of production change relatively slowly *insofar as* those conditions are not themselves functions of capacity utilisation. But changes in demand *are* likely to result not only in changes in the unit inputs associated with one technology as it is used more or less intensively, but also in the use of different vintages of technologies (fossils) that coexist with the competitively dominant technique. Moreover, in a dynamic setting, the dominant technique may coexist with new, technically and economically more efficient techniques, that for the moment earn super-normal profits.

So at any one time a variety of techniques of production will tend to exist side-by-side and the level of aggregate demand will play an important role in determining which techniques are used. Nonetheless, as far as the theory of value is concerned, as Coutts *et al.* (1978) have demonstrated, the key to price determination is the observation that there will at any one time be a dominant or normal technique that is the determinant of normal price in competitive markets, even though other techniques are used at the same time.

Secondly, that such a normal technique might be reasonably presumed to exist is suggested by the study of price formation in industrial economies. It is found that *normal* capacity utilisation does not involve the total utilisation of capacity, but instead is a level of utilisation that is $<100\%$, and around which output will fluctuate. Prices are determined by the conditions of production at this normal level of (less than full) capacity utilisation—'prices are determined by normal (or standard) costs, and... they do not react to temporary, or cyclically reversible, changes in either demand or cost. This is what we shall call the *normal price hypothesis*. According to this view, the firm calculates the level of costs at a normal level of output, and sets prices as a mark up on normal costs without reference to temporary variations in demand' (Coutts *et al.*, 1978, pp. 1–2).

Taking these two points together, the normal conditions of production are those around which cyclical changes in capacity utilisation oscillate, and empirical evidence suggests that these normal conditions play the predominant role in the determination of prices. And it is this normal level of output, appreciably below full

capacity utilisation, ‘the mean position determined by “natural” tendencies, namely by those tendencies which are likely to persist’, that Keynes’s positive contribution can determine.

2.e *Effective demand and the ‘short-run’*

It might then be concluded that Keynes theory of normal output is complementary to the analysis of normal prices in the surplus approach to value and distribution. However, Garegnani has argued that such a conclusion would be premature:

The meaning of ‘long run’ cannot but be partly different when used in connection with a theory of aggregate output than when it is used for a theory of relative output. While the meaning of a given plant (equipment or productive capacity) remains, what is relevant for Marshall is the lack of congruence between relative capacity and relative demand in the several industries. What is instead relevant for a theory of aggregate output like that of Keynes is the lack of congruence between aggregate capacity and aggregate demand. When this distinction is made it should be clear that Keynes is concerned with a short period analysis of aggregate output (the determination of the level of capacity utilisation) and that a long period analysis of aggregate output, *i.e.* an analysis of the reciprocal adaptation of aggregate supply and aggregate demand is one and the same thing as the theory of accumulation. This is absent in Keynes apart from some hints we find in the first two sections of chapter 24 of the *General Theory*. (Garegnani, 1983)

In pointing towards ‘the reciprocal adaptation of aggregate supply and aggregate demand’ Garegnani is thinking of the two-sided nature of investment (determining demand and determining the growth of capacity) as is made clear in the paper *Accumulation of capital*, that he wrote with Antonella Palumbo in 1997. This is, of course, exactly the problem discussed by Harrod in *Towards a Dynamic Economics* (1948). Indeed, Garegnani and Palumbo’s equation for the expansion of capacity is formally equivalent to Harrod’s famous $g = s/v$.

It seems to me that associating the normal level of output with the process of accumulation is a mistake, and diminishes the usefulness of the concept. A ‘theory of accumulation’ surely refers to the changing structure of the economy through time, most notably as a consequence of the technological change that typically accompanies the growth of the capital stock. Long-run normal prices and long-run normal quantities are the centres of gravitation for the economy as it is *at any particular time*. The role of a theory of accumulation is to provide an analysis of the dynamics of those normal positions.

2.f *Gravitation*

But there remains a nagging problem that needs to be solved before classical and Keynesian analyses can be deemed to be at one, in the same dimension of normal positions of the economy.

The problem is this: how a normal level of output, ‘the mean position determined by “natural” tendencies’, is to be determined when the process of adjustment of

capacity to demand must involve changes in investment—and yet the volume of investment is the independent variable in Keynes's theory of effective demand. It would seem that the process of moving toward the 'mean position' would change that mean. Normal output would be path dependent.

The solution that Keynes proposes is that it is not ultimately investment that is the independent variable; instead 'the state of long-term expectations' fulfils that role:

If we suppose a state of expectations to continue for a sufficient length of time for the effect on employment to have worked itself out so completely that there is, broadly speaking, no piece of employment going on which would not take place if the new state of expectation had always existed, the steady level of employment thus attained may be called the long period employment corresponding to that state of expectation. (Keynes, 1936, p. 48)

So there will be a level and composition of capacity corresponding to any given level of long-term expectation. If existing capacity is above or below this level, then the prospect of profit will induce the investment necessary to change the level and composition of capacity to that appropriate to the state of long-term expectation. The process may overshoot. But so long as the state of expectation may be supposed to be given, then competition will tend to push capacity towards that which is appropriate to sustain the long-term level of employment *at normal prices*.

An immediate reaction to this might be that far too much weight is being placed on the idea of a given state of long-term expectations. The approach encourages an individualistic, almost a psychological interpretation. However, Keynes embeds the formation of long-term expectations not in individuals, but in social and economic convention (Keynes, 1936, chapter 12). In other words, long-term expectations are themselves the product of industrial structure, the relationship between finance and industry, the recent history of competitiveness and technological change, the state of industrial relations, and so on, all factors that define the institutional environment within which economic activity takes place. It is these factors that stabilise or destabilise convention. And of course, it is just these same factors that comprise the historically relevant framework that is arrayed around the core of the classical theory of value.

To sum up:

Garegnani provides us with the essential tool-kit for both the negative task of clearing ground of the false trails of neoclassical economics, and the positive task of building a theory of the determination of normal prices and of normal output and employment, as the core of a general theory of the operations of a market economy. Moreover, it is evident that the classical theory of value and distribution, and Keynes's principle of effective demand require the input of the same sort of historical and institutional information. This is how economics should be done.

III. WHAT IS ECONOMICS FOR?

Economics is meant to be useful. Not only is it supposed to give a greater understanding of how a market economy works, but also it should be a guide to economic policy.

3.a *Going outside the core*

In this respect, Keynesian theory has undoubtedly been a success. Even those who hold fast to an 'imperfektionist' interpretation of Keynesian analysis nonetheless advocate Keynesian policies, particularly in the face of the current recession. This is not to say that there are not those who entirely reject Keynesian policies, nor to claim that what may be deemed Keynesian policies are always articulated within a coherent analytical framework. Of course not. But there can be no doubt that the publication of the *General Theory* heralded the development of a range of empirical tools, not least modern national income accounting, that are the starting point for policy discussion, whatever the ultimate policy perspective might be.

What I find particularly striking, is that classical value theory, or, if you like, the surplus approach, has not received similar acceptance, given its strong empirical core.

I believe this failure, if I can put it that strongly, is due to three reasons:

First, the significance of classical value theory for other components of economic analysis, most particularly the Keynesian theory of effective demand, has not been developed very much by those of us convinced of the veracity of the classical approach. Garegnani performed the crucial path-finding task of demonstrating the relationship between theories of output and employment and theories of value and distribution, but there the research project seems to have come to a halt. A major reason may be the disagreement over what is long-run and what is short-run theory. The idea that Keynesian theory is short-run, so popular amongst both neoclassical economists and amongst the so-called post-Keynesian school, has driven a wedge between value theory and the theory of effective demand, to the ultimate detriment of both. Recognising that Keynesian theory is a theory of normal positions would do a lot to remedy this.

Secondly, there has been a failure to emphasise that classical value theory and Keynesian theory share a common structure—that both are dependent upon empirical data from outside the theoretical core. Classical theory is dependent upon market structure, the composition of output and the distribution of income (or, to be more accurate, one of the distributive variables, the wage or the rate of profit). These data can be derived from the historical position of the economy, the stage of evolution in the history of technical progress, the structure of international trade, the structure of corporate enterprise, the financial and monetary system, the policies of the state, and so on, all of which are arrayed outside the core, but are vital to its specification. Similarly, Keynesian theory is inconceivable without a clear specification of the structure of finance. The principle of effective demand is dependent

upon the existence of a relatively sophisticated financial sector, and developments in the financial sector will in turn have an impact upon the determination of investment and the process of accumulation. It is one of the obvious failures of neoclassical theory that financial variables play no role in the determination of prices and outputs. It is an abiding strength of classical and Keynesian analysis that not only can financial variables be readily accommodated, some of the analysis will not work without them.

Thirdly, there has been a reluctance to step outside the core to provide a more rounded picture of the operations of a modern market economy. The idea of the core, and the solution within the core of the problem of value and distribution, and, I would claim, though Garegnani might disagree, of the normal level of output, still does not absolve us from elaborating what lies outside and its relationship and interaction with what lies inside. This we have been reluctant to do in a comprehensive manner.

3.b Financial markets

Let me illustrate my point in the context of the liberalisation of financial markets that began in the 1970s with the collapse of the Bretton Woods system of international financial management, a system of fixed exchange rates buttressed by capital controls. Prior to the wave of financial market liberalisation that was sparked off by President Nixon's abandonment of the Bretton Woods system in August 1971, post-World War II sovereign bond markets were predominantly national. With liberalisation international markets grew rapidly. Overseas sales of US bonds rose from 3% of US gdp in 1970 to 200% in the early 2000s; whilst overseas sales of UK bonds rose from nil in 1970 (such sales would have been illegal) to 1000% of UK gdp in the early 2000s. The enormous scale of international bond transactions today makes it possible for there to be huge swings in the funding of sovereign bond markets, between holdings of say dollar, sterling or euro bonds, or between different sovereign euro bonds. These potentially destabilising swings have transformed the sensitivity of funding policy to market forces.

The financial innovation that accompanied liberalisation has resulted in a rapid growth in the size of the balance sheets of the banks (and other financial intermediaries) *relative to the underlying transactions that those balance sheets are based upon*. Broadly speaking, the assets of the banks have grown at an average rate of 15% since 1978. Given that the world gdp has grown (in nominal terms) at a little more than 5.8% per annum over the same period, the excess growth of 9.2% per year suggests that the banks' balance sheets are now around 20 times greater, relative to the given underlying gdp, than was the case 33 years ago. Since deposits are not likely to rise at a rate much faster than the growth of gdp, the relative increase in the size of financial balance sheets must be due to the growth of wholesale lending between financial institutions.

The growth of wholesale funding has in turn transformed the balance sheets of the banks. In the 1960s the liabilities of a bank consisted almost entirely of deposits by households and firms. The assets of the bank were a mixture of very liquid assets, such as Treasury Bills and trade acceptances (around 40%) and loans to households and firms (the remaining 60%). Today the balance sheet looks quite different. Deposits by households and firms comprise only about 20% of the liabilities, the rest being made up of lending from other banks (much of it international) and other short-term wholesale funding such as commercial paper and repos. In the UK, funding through the repo market is almost of the same order as funding by deposits. And only round 25% of the asset side of the banks' balance sheets consist of traditional loans to households and firms, the rest being *marketable* loans and securitised investments.

These three inter-related institutional phenomena, outside the core, the growth of the international bond market, the growth of the balance sheets of the banks relative to gdp, and the change in the funding structure of the banks, have been associated with the changes within the core, in the distribution of income and in the relationship between finance and effective demand.

First, value and distribution: The liberalisation of financial markets has been accompanied by two marked changes in the distribution of income. In all market economies there has been an increase in the inequality of personal incomes. And there has also been a marked shift in the shares of total income from wages to profits, with the share of wages in national income declining steadily in OECD countries from the mid-1970s onward. A major part of the shift to profits has been toward financial services. The growth of personal consumption was sustained by the growth of household debt.

Secondly, output and employment: The rate of growth in almost all countries in the world other than China and India has slowed significantly since the mid-1970s. Slower growth of gdp has been accompanied by slower growth of employment, and, indeed, by high rates of unemployment in developed countries.

Identifying the causal linkages between these major financial changes, and their culmination in the current recession is, of course, a huge and complex task, well beyond the scope of this lecture.

But my main point is that the core is the best starting point. First, because the classical/Keynesian core does not include any notion of a price mechanism that results in an automatic gravitation of output toward full employment. Secondly, because the theory of output is necessarily a financial theory, and hence changes in the structure of financial markets will have direct implications for output and employment. Thirdly, because there is no notion of the 'fundamental values' of financial assets as reflective of equilibrium, market clearing prices. Fourthly, because social efficiency, insofar as that term has any meaning, is associated with employment and the distribution of income, not with a market clearing equilibrium. Fifthly, because institutions are just institutions, they are not the expression of efficient markets. If the

institutions are inhibiting the attainment of society's economic goals, however they might be articulated, then the institutions should be changed.

All these factors can be seen in stark relief in the context of the current recession. The macro-economic policies being pursued, particularly within the Eurozone, and in Britain, seem to me to be quite simply economic madness. The belief that somehow austerity will lead to an automatic readjustment to full-employment rates of growth is the very stuff of the self-adjusting propositions of neoclassical theory. This is a policy without any empirical or theoretical foundation. Yet it is a policy from which no country (except perhaps the USA) seems able to escape.

3.c 'Passionate intensity'

I conclude that we need to use the core by stepping outside the core, using the insights that Garegnani has given us to fashion a broader policy-focussed economics. This will necessarily have major historical and institutional components, and many of the specifics will not be unchanging. Perhaps the reluctance to take these steps has been due to the complexity of handling the resultant heterogeneity. After all, neoclassical theory has the apparent intellectual strength of reducing the world to a single principle, the maximisation of utility subject to constraints of technology and endowment—a point famously made by Samuelson in his *Foundations of Economic Analysis* (1947). But it is exactly this proposition that has failed, and with it the entire neoclassical project.

This failure, and its aftermath, recalls W.B. Yeats great poem of 1919, *The Second Coming*:

Things fall apart; the centre cannot hold

Yeats continued:

Mere anarchy is loosed upon the world,
The blood-dimmed tide is loosed, and everywhere
The ceremony of innocence is drowned;
The best lack all conviction, while the worst
Are full of passionate intensity.

I cannot think of a better summing of the state of economics and of so much of economic policy today. And that is our responsibility. It is no good simply blaming ideology, or appointments processes, or politics, or obsession with technique over relevance or even application. If we have failed to convince, it is our fault. It is, perhaps, because we 'lack all conviction'.

So if we are to do justice to the remarkable analytical legacy of Pierangelo Garegnani, we must clarify and strengthen the core, and we must step outside the core, arguing with passionate intensity for classical and Keynesian theory, for its *practical* significance within any given historical context, and hence and for making economics useful once again.

That would be a great memorial for Pierangelo Garegnani, a man who was always 'full of passionate intensity'.

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