FABIO PETRI

IMPLICATIONS FOR ECONOMIC POLICY OF RECENT ADVANCES IN THE THEORY OF CAPITAL AND OF DISTRIBUTION[1]

1. In this paper I try briefly to illustrate some implications for economic policy of the results in the theory of capital and of income distribution due to Sraffa (1960) and others. These results, I shall argue, when correctly understood (their significance is often misinterpreted), reveal decisive weaknesses in the foundations of the marginalist (nowadays often called neoclassical[2]) approach, so that one is obliged to reject this approach in favour of its main alternative, the resumption of the classical approach to value and distribution combined with Keynes's principle of effective demand. The consequences for the explanation of unemployment, and of growth, are radical and have profound implications for economic policy.

Given the limitations of what a single paper can achieve, the purpose of the paper is essentially informative: its intended audience is students, and economists who have not taken active part in the debates on Sraffa's contribution. It aims to summarize in simple terms the criticisms − whose contents are not easy to grasp from current mainsteam publications, which usually misrepresent them in the few instances when they mention them at all − and to point out the profound implications of the proposed alternative, in the hope that this will persuade students, and at least a few serious economists of mainstream formation, that it is necessary and worthwhile to dedicate the necessary energies to understanding the theoretical arguments that have such radical consequences.

PART I: CRITICISM OF THE MARGINALIST APPROACH, AND SOME CONSTRUCTIVE ALTERNATIVES

2. The marginalist approach to value and distribution argues that, in the absence of rigidities, there is a tendency toward a simultaneous equilibrium between supply and demand on all factor markets. The criticisms undermine both the supply side and

[1] Provisional version, not to be quoted. A first, longer version of this paper, the text of a 2002 lecture to students at the Università di Napoli, is available in Italian as "Implicazioni per la politica economica di alcuni recenti risultati di teoria economica", Quaderni del Dipartimento di Economia Politica, Università di Siena, n. 378, Febbraio 2003. In the present version Part I is very succinct because readers can find a more detailed but still fairly simple presentation of the criticisms in Petri (2004). Comments are welcome and can be sent to petri@unisi.it .

[2] The term 'neoclassical' became widespread with the 'neoclassical synthesis', term intended to convey the synthesis between Keynes's analyses and the pre-Keynesian (in fact marginalist) analyses that Keynes, admittedly 'perhaps perpetrating a solecism', had called 'classical' owing to his belief (influenced by Marshall's 'continuist' interpretation of the history of economic theory) that Ricardo did not fundamentally differ from Marshall, Pigou, Robertson, or Taussig, and especially so on the issue Keynes was centrally interested in criticizing, the acceptance of Say's Law.

the demand side of this theory.

I start with the supply side. Here the criticism is that the theory requires a given capital endowment (we distinguish below two ways to specify it) but it is impossible to specify it in a satisfactory way (i.e. such that it is legitimate to consider it given, that is, independent of what must be determined and unaffected by disequilibrium adjustments, and hence among the *determinants* of the position toward which the economy tends, rather than *determined by* the latter or by the process of tendency toward the latter); hence the system of equations that should determine the general equilibrium becomes underdetermined, and the equilibrium cannot be determined i.e. is revealed to be an inconsistent notion. Briefly, the argument is that marginalist general equilibria come in two groups of versions: long-period, or very-short-period (neo-Walrasian). Long-period general equilibria, e.g. Wicksell's, aim at determining what Marshall called long-period normal prices and quantities (the corresponding classical notion being that of natural prices and quantities), and must accordingly leave the endowments of the several capital goods among the variables that the equilibrium must determine, because during the adjustments required for prices to tend to their long-period normal values (equal to minimum average costs) there is ample time for those endowments to be changed. The *composition* of capital is then endogenously determined by the condition of equality between demand price and supply price of the several capital goods, which requires their endowments to adjust to the demands for them, derived from net outputs and cost-minimizing technical choices; but the general equilibrium system of equations has then a degree of freedom[3], that requires in order to be 'closed' the condition of equality between total supply and demand for capital conceived as a single factor of variable 'form'. This factor must be measured as an amount of exchange value, because the postulate that the several capital goods embody − are crystallizations of − different amounts of a common factor 'capital' entails that those amounts are proportional to their values (because in equilibrium the net rentals earned by the several capital goods are proportional to their values). But a given value endowment of a factor is illegitimate when the purpose of the analysis is to determine values. Thus an economist who wanted to build a numerical long-period general equilibrium model would have to include among the data of the model, besides the observed amounts of lands and of labours[4], the observed value of capital, but the

[3] This has been first clearly pointed out by Garegnani (1960), and then confirmed by several other authors, e.g., with the help of different models, by Petri (1978, 2003c, 2004).

[4] A widespread misunderstanding is that there is no special capital aggregation problem because analogous aggregation problems arise with labour. What is not grasped by such an argument is that the treatment of capital as a single factor in the determination of long-period equilibria is made indispensable by the need to leave the 'form' of capital free to be determined endogenously, owing to the speed with which the quantities in existence of the several capital goods can change relative to the speed of plausible processes of adjustment between supply and demand. On the contrary, the supplies of the different kinds of skilled labour change slowly enough as to make it generally legitimate to treat

latter would depend on the observed prices, and would be altered by any change in income distribution; therefore it is illegitimate to treat it as given, as one of the *data* determining income distribution (Garegnani 1990; Petri 2004, ch. 3).

It is by now largely accepted that the gradual realization of this problem explains the shift, in the second half of the 20th century, to very-short-period general equilibria that resume the Walrasian treatment of the capital endowment as a given *vector*, a treatment which had met very little success in Walras's time because incompatible with the aim, fully accepted at the time (even by Walras), that economic theory had to determine sufficiently persistent positions, capable of providing a guide to the averages and trends of day-by-day prices and quantities (Petri 2006). With Hicks's temporary equilibrium and Arrow-Debreu's intertemporal equilibrium, value theorists abandon the attempt to determine normal prices and become content with the determination of very-short-period equilibria: but these equilibria suffer from the impermanence of the data relative to the capital endowments; any time-consuming disequilibrium adjustment (of course the instantaneous auctioneer-guided tâtonnement is only a fairy tale[5]) will alter these data, thus altering the equilibrium itself, with a consequent total indeterminateness of where the economy is heading: the moment it is admitted that adjustments are not instantaneous and involve actual productions, the need to sell first in order to be able to buy later, the possibility of bankruptcies, the possibility of at least temporary resource unemployment, etc., then the modern versions of general equilibrium become incapable of giving indications on the economy's behaviour because they are totally silent on disequilibrium behaviour i.e. on the possible extent of the difference between actual market behaviour, and the behaviour predicted by the equilibrium model (Petri 1999, 2004; Franklin Fisher 1983). One way of stressing this fact is by noting that in these very-short-period equilibria the capital endowment taken as given in these models cannot in fact be treated as one of the data determining the position toward which the economy tends. Thus in both versions of general equilibrium theory the system of equations is only apparently determinate, in fact the datum or data relative to the quantity of capital cannot be treated as given, but then a general equilibrium capable of indicating the position toward which the interplay of supplies and demands should push the economy cannot be determined, and the theory crumbles.

3. This criticism can be made concrete by showing how it applies to the labour demand curve. In order to determine how changes in the real wage alter the demand for labour, neoclassical theory uses a demand-for-labour curve, that reflects (to put the

---

them as given when studying the tendency of prices toward normal costs of production, and therefore long-period equilibria did not need to 'aggregate' labour.

[5] It also suffers from little-noticed grave difficulties pointed out in Petri (2004, ch. 5, Appendix 3).

issue in simple terms) the marginal product of labour. But in order to determine the marginal product of a factor one must have given utilizations of the other factors; in an economy-wide analysis, this means that one must assume equilibrium on the markets of the other factors. Therefore to derive the demand curve for labour, one must assume the equality between supply and demand for capital; but how is one to specify its supply? One cannot assume a given supply of capital the single factor of variable form, because that would mean taking as given the value of capital, which cannot be taken as given because it depends on relative prices and thus on the real wage; nor can one take as given the endowments of the several capital goods, including the endowments of nails, of bricks, of spare parts waiting to be assembled into final products: these quantities would have no persistence and would be quickly altered by any change in real wages with the connected changes in relative prices and in demands. Thus there is no way satisfactorily to specify the capital endowment to be kept fixed as the real wage is varied[6].

From this there follows a consequence of great importance: the traditional labour demand curve cannot be determined, it is an illegitimate notion. One implication is that the real wage cannot be considered determined by the tendency toward the intersection of a supply curve with a nonexistent demand curve; one needs a different theory of wages.

Of course, if the labour demand curve does not exist, one cannot argue that it is

[6] It might be thought that this problem could be avoided via the determination of a labour demand curve based on a Marshallian-Keynesian short period in which what is given is productive capacity (durable capital goods). But it is well known that Keynes's views on this issue do not appear theoretically convincing, nor empirically confirmed. Besides the difficulty and arbitrariness as to where to draw the line between given (durable) and endogenously determined (less durable) capital goods, in the short period labour demand is known to vary with aggregate demand with no need for changes in real wages owing to the flexibility of capacity utilization which, up to a seldom-reached maximum output, usually yields a nearly constant (often decreasing!) marginal cost; as to normal-utilization labour demand, in the short period it would be very inelastic, as admitted e.g. by Hicks (1932), because of the fixed factor proportions when capital cannot change 'form', and therefore it would be incapable anyway of yielding plausible equilibrium values of the real wage. Furthermore a short-period justification, based on given fixed plants, of the decreasing shape of the labour demand curve, even if it could be achieved, would allow no conclusion on the long-period choices of firms (the choices associated with modifications or renewals of fixed plants): the latter choices are present in any period however short, and, if such as to cause an *increase* in the demand for labour as the wage rises, they might well more than compensate the elasticity of the short-period employment decisions based on given fixed plants, decisions probably more numerous in any given short period than the long-period ones, but certainly of smaller absolute elasticity. This observation makes it clear that it is only the conception of capital as a single factor of variable 'form', whose long-period ratio to labour rises with the real wage, that can justify the common assumption that even in the short period the demand for labour is a decreasing function of the real wage, only less elastic than in the long period; it is then implicitly assumed that in the short period the long-period decisions implemented during that period, long-period decisions assumed to conform to the traditional marginalist analysis of the capital-labour ratio, althoug only partially implemented are still sufficiently important as to dominate over the accidents and irregularities of day-by-day decisions. The traditional conception of capital is far from being abandoned, contrary to what modern general equilibrium theorists claim.

decreasing; thus the thesis that, in order to increase employment, real wages must decrease loses its marginalist foundation.

So far I have treated labour as homogeneous; but the same criticism holds when there are several types of labour. The demand curve for any type of labour would still require, for its determination, the specification of the economy's capital endowment, and therefore cannot be determined. Therefore wage differentials too need a different theory in order to be explained.

4. Where can we turn then, in order to explain both the average wage level, and wage differentials?

The natural alternative is the approach developed by the first observers of capitalist society − Adam Smith and the other classical authors − , which can be integrated (a task largely still to be carried out) with subsequent analyses by non-marginalist authors, in particular the German historical school, American and British institutionalism (Veblen, Commons, Dunlop, Kerr, Turner, Wilkinson, Ulman), later Marxist and other 'radical' analyses. The reason why the private property of means of production yields an income will appear, in such a perspective, fundamentally similar to the reason why the control over the utilization of land yielded an income to feudal lords: the class monopoly of land (and of violence) by the aristocracy made it possible to pretend from serfs the *corvées* in exchange for the right to till the land for self subsistence; analogously under capitalism the worker must accept to leave part of the product to other classes in order to be allowed access to production and thus to subsistence. The division of the social product between property incomes and labour incomes will appear then to need explanation on the basis of power and relative bargaining strength just like the division of the product between feudal lords and serfs; in the same way the income differences between the several kinds of labour will have to be explained on the basis of considerations analogous to those that may explain the income differences under feudalism between serfs, soldiers, administrators, or tutors of the lord's children. In such a perspective, the reason why a bank manager earns a salary at least ten times a manual worker's wage must be largely found, with Adam Smith, in the need, for the reproduction of the capitalist social structure, to motivate certain strata of workers to share the aims of the dominant social groups.

5. After this brief digression on the alternatives to the marginalist approach, I come back to the latter and turn to the 'demand side' criticisms.

The discovery of reswitching and reverse capital deepening (Petri, 2004, ch. 6) has shown that technical choice may change with income distribution in ways contrary to what neoclassical theory expected. It has been shown that it is possible that a lower interest rate and higher real wage rate push firms to adopt productive techniques that use more labour per unit of net product, and a lower value of capital per unit of net

product or per unit of labour. Several examples have been produced showing that, in particular, reverse capital deepening is not 'improbable'. Owing to the so-called price Wicksell effects, reverse capital deepening does not need reswitching in order to occur[7]. It does not even need heterogeneous capital: in the two-sector neoclassical model where a single consumption good is produced by labour and by a capital good which is produced by labour and itself, if the capital-good industry is more capital-intensive than the consumption-good industry then reverse capital deepening can happen in spite of the physical homogeneity of capital (a rise of the rate of interest raises the value of the capital good in terms of the consumption good, with a possible rise in the value of capital per unit of labour in spite of a decrease in the physical capital per unit of labour). Therefore one has no right to assume that the demand for value capital per unit of labour is a decreasing function of the rate of interest.

The importance of this result lies above all in its implications for the theory of aggregate investment: it undermines the foundations of the traditional thesis − the basis of the dominant macroeconomic theories − that aggregate investment is a decreasing function of the rate of interest, and that therefore the rate of interest is capable of acting as the price bringing investment into equality with savings. This traditional view of investment, accepted by Keynes too, reflected the traditional thesis that the demand for capital (in value terms: investment is a value quantity) was a decreasing function of the rate of interest.

The connection between demand for capital and theory of aggregate investment has been clarified by Garegnani (1978-79, Part I ; cf. also Petri, 2004, ch. 4, §4.3): the flow of gross investment was more or less clearly viewed as determined by the capital-labour ratio desired in new plants, and by the flow of labour to be employed in new plants, a flow determined by the gradual closure of the plants reaching the end of their economic life and therefore leaving the labour operating them 'free' to be employed elsewhere or with different plants. Note the implicit assumption of full employment of labour, necessary to render the flow of 'free' labour determinate; note also the value nature of investment, which is a demand for loanable funds (hence, as remembered, reverse capital deepening can undermine the stability of the equilibrium of the savings-investment market even in the two-sector neoclassical growth model in spite of the physical homogeneity of capital[8]). This traditional connection was obfuscated by the rise of Keynesian economic models, where the full employment of labour was no longer assumed, and accordingly the derivation of a decreasing demand curve for the

[7] Anyway D'Ippolito's original attempt to show that reswitching is highly improbable suffered from a logical slip, and the correct analysis of his example produces quite high probabilities of reswitching, cf. Petri (2000).

[8] What neoclassical theory needs for the stability of the savings-investment market is that capital be not only homogeneous, but also homogeneous with output, so that its value is independent of income distribution.

flow of capital to be utilized in new plants became problematical even accepting that the K/L ratio was a decreasing function of the rate of interest: a given K/L ratio determines investment only if the flow of labour to be employed in new plants is given; on the contrary the presence of unemployed labour makes it possible to employ in new plants more, or less, than the flow of labour 'freed' by the closure of the older plants, correspondingly absorbing part of the unemployed labour, or letting it increase. Keynes could continue to believe in the decreasing marginal efficiency of capital in spite of labour unemployment only because of the unrigorous empiricism of his treatment of that marginal efficiency, an empiricism he inherited from Marshall (Petri 2004, pp. 259-262). Indeed his argument that 'the longer the period in view' the more relevant, in order to explain the decreasing marginal efficiency of each type of capital good, is the decreasing yield caused by its increased supply (*General Theory* p. 135), cannot be generalized to *aggregate* investment because then labour employment increases together with investment, thus the capital-labour ratio need not change, and therefore there is no reason why yields should decrease.

This problem largely explains why after Keynes the theory of aggregate investment has witnessed uncertainty, disagreements, a frequent lack of rigour (the foundation of the investment function to be then used in the IS-LM model is often indicated in the decreasing demand curve for capital, without explaining what is assumed about labour employment when deriving the latter − forgetting, or hoping perhaps that the reader will forget, that the demand curve for a factor needs the full employment of the other factors for its derivation), and the birth of a number of attempts to demonstrate a negative elasticity of investment vis-à-vis the rate of interest without explicitly relying on the full employment of labour nor even, sometimes, on the conception of capital as a single factor analogous to labour or land. But it can be shown (Petri 2004, ch. 7; Ackley 1978, ch. 11) that all these attempts must be rejected, because strictly dependent on the traditional conception of capital-labour substitution refuted by reverse capital deepening, or forgetting that relative prices and hence the yields of investment projects depend on the rate of interest, or committing other errors (e.g. the adjustment costs approach in order to arrive at determinate results must assume a *given* number of firms − a ridiculous assumption in the theory of aggregate investment), or sometimes simultaneously suffering from more than one of these deficiencies[9].

[9] The criticism of the theory of aggregate investment is highly relevant also for the modern very-short-period versions of general equilibrium theory, because in these versions the full employment of resources is part of the *definition* of equilibrium, but the justification for the assumption that all full-employment savings are absorbed by investment cannot be found inside the model, not even granting the auctioneer. This is evident in temporary equilibrium models, which must implicitly rely on the theory of aggregate investment; the thing is made less clear in intertemporal equilibria owing to the absurd assumption of complete futures markets, but it would anyway become evident there too if it were admitted that in the last period of the equilibrium there is production of new capital goods.

5. This theoretical criticism provides an explanation of the difficulty met by empirical enquiries when trying to confirm that aggregate investment is a decreasing function of the rate of interest. It is well known that the generality of econometric studies, old as well as recent ones, conclude that the influence of the rate of interest is absent, or very weak at best[10]. It is natural, then, to suspect that there might be something wrong in the theoretical arguments supporting the expectation that investment ought to exhibit a negative elasticity vis-à-vis the rate of interest. The suspicion is confirmed by the theoretical criticisms just summarized, which show that indeed there is no reason generally to expect that result[11].

(Another interesting aspect of the empirical enquiries is that they universally confirm the importance of demand and of its variations for the explanation of investment: in other words, what they show is that the old acceleration principle intelligently interpreted − clearly not in its first too rigid versions − ought to receive price of place in macroeconomics textbooks, which accordingly ought also to give considerable space to multiplier-accelerator interactions. This is how econometric evidence suggests that macroeconomics should be taught. It is an interesting problem for the sociology of science to understand why things are going in a different direction, in spite of the profession's declarations of respect for the importance of econometric evidence.)

6. But then the rate of interest cannot be given the role of the price bringing investment into equality with savings. And it becomes impossible to argue, as the 'neoclassical synthesis' did (opening the way to monetarism), that persistent unemployment is fundamentally due to the downward rigidity of money wages. As is well known, the argument is that if, as Keynes argued, decreases in money wages do not succeed in increasing employment because with a given investment the sole result will be a decrease of the price level, then there is a further consequence that Keynes

---

Furthermore an argument has been advanced by Schefold and Garegnani (and it is the subject of current debate; cf. the symposium in *Metroeconomica* 2005) that in intertemporal equilibria the equilibration of the markets for intermediate goods too is problematical, because in each period these markets constitute in fact a savings-investment market where, owing to the dependence of relative prices on income distribution in these models as much as in long-period models, equilibration may encounter problems analogous to those caused by reverse capital deepening in long-period analyses. The correctness of this argument has not been confirmed yet, but even if it were, it would look to me like overkilling a theory which is already clearly unacceptable.

[10] Some influence of the rate of interest on aggregate investment may well be observed empirically, as due to indirect influences - e.g. a lower rate of interest causing a depreciation of the nation's currency that helps exports and thus stimulates aggregate demand and growth. But there is general agreement that any direct influence is at most very weak.

[11] Cf. Petri 2004, especially ch. 5, and Petri 2003b, for an explanation of why the 'Sraffian' criticisms in spite of their irrefutability have had so far a limited impact on the profession.

did not adequately consider: the decrease of the price level decreases the demand for money, hence according to Keynes's own theory the rate of interest decreases, investment increases, and unemployment is reduced. This so-called 'Keynes effect' needs a significant elasticity of investment vis-à-vis the rate of interest in order to be operative[12]; which is what the theoretical criticism rejects (and the empirical evidence does not support).

Thus the Cambridge critique of neoclassical capital theory has the effect of, one might say, defending Keynes from himself. The return of pre-Keynesian positions was made possible, essentially, by the survival in Keynes and in the generality of the profession of the traditional investment function, negatively elastic vis-à-vis the rate of interest[13]. The rejection of this theory of investment refutes the argument at the basis of such a return, without needing appeals (of uncertain persuasiveness) to the volatility of expectations, and it fully rehabilitates the 'principle of effective demand' i.e. the thesis that the equality between investment and savings is generally brought about by savings adjusting to investment via variations of output, rather than by investment adjusting to savings.

7. The rejection of the labour demand curve, and the rejection of the 'neoclassical synthesis' argument against Keynes, imply that one cannot attribute the persistence of unemployment to the rigidity of money, or of real, wages. This makes it easy to refute the argument that, if unemployment really were involuntary, we should not observe the wage rigidity that is in fact observed.

Without a significant elasticity of labour employment vis-à-vis the real wage, the idea that it is rational for involuntarily unemployed workers to offer themselves at a wage lower than the current wage loses credibility. This has been sensed by Solow (1990; Solow and Hahn 1995) who has argued, against Friedman, that it may be perfectly rational for unemployed workers not to undercut the employed workers, the basic argument being that the present value of sure employment at the competitive

[12] Of course the argument also needs that the price level actually decreases; that the money supply does not decrease with the price level; that the decrease of the price level does not cause a decrease of investment due to the greater difficulty of repayment of past debts fixed in nominal terms; that the decrease of money wages does not cause, during the interval before prices decrease, a decrease of the demand for consumption goods that discourages investment; that the negative inflation rate does not raise the real interest rate; that the greater real value of public debt does not cause an increase of taxation. One may well understand, then, why the 'neoclassical synthesis' and then monetarism have not been able to win the field completely. In particular it may be mentioned that recently a respected mainstream economist such as David Romer has proposed to give up the LM curve because central banks adjust the supply of money to the demand for money in order to control the rate of interest, thus admitting the endogeneity of the money supply insisted upon by Kaldor, Basil Moore and others. I recommend on this issue the book by Pivetti (1991).

[13] On the impossibility of defending the tendency toward full employment on the basis of the real balance or Pigou effect, cf. Petri (2004, ch. 7, Appendix 2).

(full-employment) wage may be less than the expected value of the current higher wage coupled with a probability of being employed in the future (the latter probability is calculated assuming a random extraction of the employed workers from the supply of labour every period); then the ruling wage may be sustained by a repeated game where the alternative to not undercutting is playing the competitive wage forever. De Francesco (1993), in an important contribution unfortunately not available in English, has noted that the assumption of total reshuffling of emploment among the available labourers every period is implausible, because the employed workers usually remain employed, and the unemployed ones remain unemployed, for long periods; nonetheless, it may still be convenient not to undercut if there is some labour turnover implying a positive, even if small, probability of getting a job in the future, and if the elasticity of labour demand is sufficiently low. It is my strong persuasion that the argument can be considerably strengthened (the formal demonstration remains to be done) by noting what the result of wage undercutting will be, if a) the notion of a decreasing labour demand curve is rejected on the basis of the arguments remembered earlier, and it is concluded that labour employment should be considered prima facie unaffected by the level of the real wage, and b) instead of assuming a repeated game with defection being kept at bay by the danger of punishment, the reaction of the employed workers to wage undercutting is more realistically considered. Indeed, if unemployed workers offers to work at a lower wage, firms will have an incentive to replace the incumbent workers with the unemployed ones; but then it is plausible that, rather than lose the job, the employed workers will accept themselves the lower wage; then even an extremely low cost of hiring and firing would induce firms not to replace their incumbent workers[14]; and since the demand for labour does not increase, the unemployed workers would not gain anything, their undercutting would have the sole result of decreasing the wage of the employed workers. Therefore it is not rational for the unemployed workers to offer to work for a lower wage, they gain nothing from it and they damage the employed workers, among whom most probably they have relatives or friends, some of whom perhaps are helping them economically[15].

In order to use such considerations to explain (and justify) the downward

[14] In neoclassical theory too this is implicitly accepted, the lower wage does not induce a *replacement* of incumbent workers with unemployed workers, rather it induces firms to employ the unemployed workers in *addition* to the previously employed ones, owing to the assumed decreasing labour demand curve.

[15] An analogous damage to the already employed workers with little or no advantage for the unemployed would derive from the birth of new firms employing only unemployed workers at the lower wage. The old firms could use the need to stand up to the competition from the new firms, plus the menace of replacement, to obtain the same wage decrease from their workers, and, most probably enjoying advantages of custom, of learning by doing, and of absence of starting costs, they would in all likelihood be able to win in the competition with the new firms, which would have to close down. Thus the result would be the same as in the main text, with the unemployed workers returning unemployed after a short while, and wages having decreased in the meanwhile.

rigidity of wages it is not necessary to assume a conscious rational calculation by unemployed workers; it suffices to postulate that these considerations explain the birth of a social habit or convention, which is then transmitted as part of the rules of social behaviour accepted by the community (a point also made by Solow). Indeed in such a perspective it is natural to assume that, after a period of initial *apprentissage* (at the time of the birth of an industrial working class), experience must have painfully taught workers that wage undercutting must be avoided, because useless for the unemployed and eminently dangerous for the working class as a whole; it must have been natural then for the workers to inherit and insert in their culture the habits, already existing among peasants in feudal society, of class co-operation and collective effort to maintain the acquired standards of living, habits that avoided the need for newcomers every time to learn anew, through bitter experience, that wage undercutting does not get them a job − a learning process that would greatly damage all wage labourers. These habits would appear to a casual observer to be obviously present in our societies and very strong: the idea of going to firms and offering to replace already employed workers for a lower wage normally does not occur at all to the unemployed workers.

What we find in the historical record is, rather, notions of 'fair wages' that embody the average wage resulting from relative bargaining power over the recent past, and that are the platform from which subsequent bargaining starts, a platform generally accepted by the unemployed workers too, independently of the existence of trade unions or other forms of explicit coalition[16]. We see here, I would suggest, the operation of those customs and habits that the classical economists considered the main determinants of real wages.

The empirically evident absence of an indefinite downward flexibility of wages even in the presence of considerable unemployment appears therefore easy to explain as soon as one drops the neoclassical approach; these theoretical considerations give full support to the views of the classical economists, where one does not find the neoclassical idea that one should expect an indefinite downward wage flexibility as long as there is involuntary unemployment, one only finds the idea that considerable unemployment, or other elements weakening the workers, can cause a slow and

[16] Cf. Solow 1980, 1990 for a reminder of the historical importance of such a notion. I would suggest that the term 'fair' in 'fair wages' should be interpreted as expressing − rather than an idea of 'just or equitable price', which would imply that workers find the 'fair wage' to be what they *deserve* − simply an idea of correctly abiding by the rules, as in 'fair play'. If wages result from a permanent (open or latent) conflict between capital and labour, then in each period the average wage is the result of a bargaining process which has resulted in what can be seen as an armistice or truce in that conflict. Now an armistice is a pact, and *pacta sunt servanda*; thus the workers claim the wage established by the pact, in exchange for which they know they have accepted to perform the bargained i.e. customary amount of labour; hence 'a fair day's wage for a fair day's work', the dictum quoted by Marshall, can be interpreted as meaning 'if I, worker, respect the pact at the basis of the armistice, you firm too must respect it if you do not want a resumption of active conflict'.

limited decrease of real wages[17].

In conclusion, the abandonment of the marginalist/neoclassical approach to income distribution and the resumption of a classical approach coupled with the principle of effective demand result in a reconciliation of theory with what empirical evidence shows, both with respect to wages and unemployment, and with respect to aggregate investment and the patent lack of validity of Say's Law.

On this basis we can now turn to examining some implications for policy.

PART II: IMPLICATIONS FOR ECONOMIC POLICY

8. *First*: Since there is no spontaneous tendency of a market economy toward the full employment of resources, employment depends on aggregate demand, which in turn depends on its autonomous components and on the multiplier. The state is able to control aggregate demand, and so it can ensure a nearly-full labour employment if it wants; but will it want it?

Second: At least in a closed economy, it is not true that in order to raise employment the real wage rate must decrease. In a depressed economy a rise of wages might well exert a positive influence on employment, by raising the multiplier. (See below for some initial considerations on open economies.)

An immediate implication of the first point is that one can dismiss the explanations of the differences between USA and Europe on unemployment and growth rates, based on the differences in 'flexibility' and in 'hiring risk'. The idea, that employers hire more workers if they are more certain that they can fire them if necessary, is hardly defensible even within a neoclassical framework: in such a framework the sole consequence should be a downward shift of the labour demand curve, required by the need to subtract a greater risk premium from the marginal

[17] Recourse to theories of 'efficiency wages' appears therefore unnecessary in order to explain the downward rigidity of wages. Which is fortunate, because these theories suffer from serious difficulties. Here I only briefly discuss the version based on shirking. The basic idea is that, for each given level of employment, there is a wage level below which the danger of being fired no longer compensates the unpleasantness of work effort, so if the real wage falls below that level the worker decreases effort by a greater percentage than the wage per unit of time (thus for the firm the wage cost per unit of effort rises). Since in this approach the efficiency wage depends exclusively on workers' preferences, on the rate of unemployment, and on the fallback wage, the following difficulty arises: the historical occurrence, in different historical epochs, of vastly different real wage levels at similar unemployment rates must be explained as due either to unexplained changes in preferences (which would mean to explain nothing), or to changes in the fallback wage which in turn would need explanation: e.g. changes in unemployment subsidies, by sending us back to political processes, would send us back ultimately to the relative bargaining strength of the conflicting classes; one way or the other, class conflict with all its sociopolitical complications would appear necessarily to enter the analysis, but then it seems more realistic to admit its role within the firm too, and to admit that the reason why firms do not lower wages includes fears that workers would work less but as a protest and a form of struggle, probably accompanied by work-to-rule, sabotage etcetera, rather than simply because of a lesser interest in not losing the job.

product of labour; the result should simply be a lower equilibrium real wage. Analogously, the thesis that investment is, ceteris paribus, a decreasing function of risk should only imply that in order to induce investment to absorb any given flow of savings the rate of interest should be somewhat lower. In a classical-Keynesian framework, the effect of 'flexibility' on labour employment depends on the theory of investment; now, the idea, that firms do not increase capacity if sales durably increase if only they have difficulty in firing workers, is hardly credible: when demand rises, firms are not going to tolerate losses of market shares only because they are afraid of not being able to get rid of excess workers in case a recession were to occur in the future. The short-period effect of an *increase* in employment protection might well be an anticipated scrapping of plants, i.e. an increase of investment, in order to replace plants with plants involving a higher output-labour ratio so as to minimize the danger from having to bear an excessive workforce; the effect on employment might well be positive, owing to the multiplier effects of the increased investment. But whatever the influence of the riskiness of stable employment on the preferred technology, once technology had adjusted the adjustment of capacity to output (whose older name is the accelerator) would go back to being the dominant influence, i.e. net investment would depend above all on demand increases perceived as persistent; thus differences in growth would have to be explained by looking at the determinants of the growth of the autonomous components of aggregate demand, and thus, for example, in the comparison between the USA and Europe, one would have to give great importance to the greater expansion of public expenditure in the USA than in Europe in the 1990s.

The second point distinguishes the theses advocated here from the views of many economists who broadly accept the first point but are more 'orthodox' on the theory of value and distribution, e.g. the contributors − Franco Modigliani among them − to a Manifesto for Employment in Europe, published in Italian in 1998 (Moro 1998). These authors, as one could expect owing to their 'neoclassical synthesis' background, accept that the increase in employment will necessarily have to go together with a decrease of the average real wage rate. On the contrary (if for the moment we leave aside open-economy issues such as international competitiveness) there is no need for such a decrease. The well-known flexibility of production in response to aggregate demand without decreases in average labour productivity (an increase is more probable) implies that rises in aggregate demand will at first stimulate increases in the rate of utilization of existing productive capacity, increases which will permit a faster amortization of fixed plants and a more certain repayment of debt, with no need for real wage decreases; in the longer period the increased rate of capacity utilization will stimulate increases in capacity (i.e. net investment); the new capacity will permit the employment of further workers without, again, any need for wage decreases.

But it is not only on the second point that the theses advanced here contradict traditional Keynesian wisdom (including the authors of the abovementioned

Manifesto). Another important difference concerns the belief that one can be largely content with policies of reduction of the rate of interest − monetary policy − to stimulate investment and thus employment. Monetary policy can have effects on consumption expenditure, e.g. a lower interest rate favours consumer credit and that very significan component of consumer expenditure based on credit that consists in investment new houWithout denying that reductions of the rate of interest can have effects on housing expenditure (especially, I would tend to believe, of anticipations of expenditures which would otherwise occur later), there is no reason to expect these effects on employment to be persistent[18] or sufficient, nor to expect there to be significant effects on capacity-producing investment (the one relevant for subsequent growth). Thus for example the Italian experience of the last years, as well as the Japanese experience after 1990, show stagnating investment in spite of a decrease of interest rates. The current dislike for fiscal policies is the result of decades of intellectual dominance of the anti-Keynesian positions, but it has no solid foundation. The drive to lower taxation expresses the preferences of the rich, who are the sole ones who, being able to afford (and often already choosing) high-quality private health services and private education, would not be damaged by a reduced availability of public health or public education; unfortunately, free-rider elements plus ignorance make the desire for reduced taxation easily accepted by other strata and professions too: each group can benefit by a reduction of taxation restricted to them only, and the lobbying game ends up by helping the dominant groups. The aversion to deficit spending too has faulty foundations (see below); but anyway the balanced-budget or Haavelmo theorem shows that an expansionary fiscal policy need not entail deficit spending. Furthermore, investment and aggregate demand can be stimulated by increases of investment of nationalized firms, independently financed, which if well planned will repay themselves and will therefore cause no aggravation of public debt: here too, I see no reason to accept the current vogue for privatization, which appears to me to have neither theoretical nor empirical foundations. The examples of publicly owned companies which have functioned very well abound, for example Renault, or Volkswagen, before they were privatized. It is unclear that good managers work better at the head of private than of public companies[19]. Certainly the managers of

[18] A lower interest rate tends to raise the price of houses and hence the value of land, thus, one would expect, raising the supply price of new houses, while property incomes probably decrease owing to the lower interest rate. The overall long-period effect on the demand for increases of the stock of lodgings awaits careful study.

[19] In Italy, the experience of private capital has been certainly worse than the experience of nationalized firms: the rampant capitalists of the 1950s and 1960s such as Rovelli have left little but ruins behind them; the successful ones like Benetton turn more and more to rentier forms of income rather than to productive investments; one may also remember the suicide of Gardini, the Parmalat scandal, the need for repeated state support of FIAT, and also the fact that, when the possibility was considered of selling FIAT to foreign competitors, these made it clear that the sole interesting

nationalized firms would not have the incentives to behave like in the Enron case. And the indubitable enormous change in the balance of power between private capital and government, brough about by the privatization of nationalized firms, is something on which we still await good studies.

9. *Third*: the determination of both the level of the average real wage, and of wage differentials, necessarily includes political power relations. Access restrictions to certain professions (e.g., in Italy, restriction of access to medical and to dentistry schools) is a political decision that raises the income of those professionals. The theories of wage differentials based on human capital (i.e., essentially, on the marginal product of education) fall on the impossibility to determine marginal products independently of prices and hence of the existing income distribution[20]. One must conclude that there is no such thing as a 'natural' hierarchy of wages, nor a 'natural' average wage (nor, as a consequence, a 'natural' rate of return on capital). It all depends on the relative bargaining power[21] of the different social groups, and on the alliances they form.

In the current debates among economists, the most relevant implication is perhaps for the theories of inflation. Inflation too should be considered a largely political phenomenon, not explainable through a simple notion such as a NAIRU rate of unemployment.

Indeed, if income distribution results from a conflict, if the customs and habits mentioned by the classical authors are only armistices, truces susceptible of violation as soon as one side feels sufficiently strong, then it appears eminently plausible that inflation be most of the time cost inflation due to unresolved distributive conflicts[22]. One can then expect inflation to be certainly influenced by unemployment, which influences bargaining on labour markets; but one will also expect this influence to be very variable, owing to the existence of so many other elements influencing relative bargaining strength, for example: results of political elections, legislative changes, ideological and organizational changes in trade unions affecting their readiness to accept compromises, readiness on the government's part to give concessions (e.g.

---

component of the FIAT conglomerate (apart from Ferrari) was Alfa Romeo, whose fame had been built before it was bought by FIAT, i.e. when it was publicly owned.

[20] These theories had already been criticized by the 1976 study by Bowles and Gintis which had shown that wage differentials were often much greater that what would suffice to repay the investment in education that permits the access to the better-paid professions.

[21] This term is vague, but this only reflects the variety of elements that can influence in each historical situation the outcome of social conflict.

[22] An interesting book which has not received the attention it deserves, Burdekin and Burkett (1996), argues that even the interwar German hyperinflation must be explained as cost inflation rather than as due to excessive money creation.

welfare state improvements) in exchange for wage moderation, nature of the discourses that dominate the media on the causes and remedies for unemployment, international relations and constraints deriving from them on the implementable policies, expectations of trade unions on the effects of their action on employment. Thus it is conceivable that ~~a decrease of unemployment may not induce trade unions to ask for wage increases in excess of labour productivity, if they esteem that it is not opportune to disturb with wage demands a process of economic expansion which is benefiting their unemployed members. It is also conceivable that~~ trade unions may agree to restrain their demands for wage increases in exchange for policies promoting employment (this is generally agreed to have happened in the so-called "neo-corporatist" economies). ~~—~~But it is also conceivable that, without considerable variations in unemployment, a change in the political climate may cause sharp increases of wage demands (as in May 1968 in France, or in the so-called Hot Autumn of 1969 in Italy ~~where, with nearly the same unemployment as in earlier years but with mounting student political activity, several major worker categories obtained wage increases of around 30%~~) – or decreases, if e.g. there is a change of government in a direction ~~clearly~~ hostile to the labour movement (Pinochet's Chile). ~~-~~So many are the historically-specific elements entering the picture, that it would be indeed surprising if great regularity were to be observed in the connection between unemployment and inflation.

In fact a growing number of studies (generally not mentioned in textbooks nor in mainstream literature in spite of being often produced by highly esteemed economists) conclude that there is no stable relationship between inflation and unemployment, and that the notion of a rate of unemployment, beyond which inflation would continually accelerate, is contradicted by the econometric evidence (cf. e.g. Setterfield et al. (1992), Rowley (1995)~~, Eisner (1996)~~, Galbraith (1997), Lindbeck and Snower (1999),~~ Stirati (1999),~~ Ball (1999), Coen-Eisner-Marlin-Shah (1999), Solow (2000))[23]~~. Ray C. Fair, in the most recent (Fair, 1999) of a series of contributions against the notion of a Phillips curve, shows that increases of employment raise the price level *una tantum (MW: I would say "on a one-off basis*~~,~~

[23] That the undefinability or impermanence of the NAIRU should not come as a surprise can also be argued as follows. Once it is admitted that firms are compelled to fix cost-covering prices and that therefore, *given the other costs*, an increase in monetary wages greater than the increase of labour productivity obliges firms to raise prices, the 'given-other-costs' clause is clearly crucial, and most of the times illegitimate. ~~-~~Among the other costs there are: interest rates; the salaries of white collar workers, of managers, of external consultants (e.g. lawyers); taxes; the prices of public utilities~~' prices~~; the prices of imported inputs which depend on the exchange rate. Therefore there are several degrees of freedom which make it possible that there may be no need for firms to increase prices when money wages increase, or contrariwise that firms may have to raise prices in spite of no money wage increases. All these costs can be influenced by economic policy. ~~-~~That prices increase when employment increases may then sometimes be due to the fact that, fearing inflation, the central bank raises the interest rate!

~~*unless this is the expression used by Fair),* with nearly no permanent increase of the inflation rate, and that an econometric experiment hypothesizing a decrease of the interest rate and increase of employment in Germany from 1982 to 1990 shows that it would have been possible to decrease reduce the rate of unemployment in Germany by 1% (and increase production by 2.14%) during all those years, with an increase of the rate of inflation, after 8 years, of only 0.23%~~. Ray C. Fair, in the most recent (Fair 1999) of a long series of contributions against the notion of a Phillips curve, argues that empirical evidence shows that increases of employment raise the price level *una tantum*, with nearly no subsequent acceleration of inflation, and that an econometric experiment hypothesizing a decrease of the interest rate and increase of employment in Germany from 1982 to 1990 shows that it would have been possible to decrease the rate of unemployment in Germany by 1% (and increase production by 2.14%) during all those years, with an increase of the rate of inflation, after 8 years, of only 0.23%.

10. An implication of the above considerations is the erroneousness of assigning to the European Central Bank as unique aim the defence of price stability.

If really there were a natural rate of unemployment, and an associated potential national product to which the economy tends sufficiently rapidly, so that monetary policy aimed at curbing inflation would have negligible effects on real magnitudes, then it would be perhaps conceivable to assign by statutory decree to a 'technical' institution the task of maintaining the economy as close as possible to zero inflation; the government would remain with the sole task of trying to reduce frictional unemployment through supply-side policies. But if this spontaneous tendency to a natural rate of unemployment cannot be assumed[24], the whole theoretical framework within which the 'temporal inconsistency' problem and the arguments for the independence of the Central Bank are discussed falls down. Monetary policy centered on the rate of interest was argued above to be ineffective if aimed at influencing investment, but this does not mean that it has no effects. Changes in the rate of interest have effects on income distribution, because competition causes the rate of return on investments, i.e. the rate of profit, to move in step with the rate of interest; thus rises of the rate of interest motivated by the need to fight inflation redistribute income from wage incomes to property incomes. Furthermore, if the aim is to fight inflation by 'cooling down' economic activity and a direct effect of a rise of the rate of interest on

[24] The reason is not only that the NAIRU is indeterminable; t~~T~~he theory of a spontaneous tendency~~trend~~ towards the NAIRU again requires the ~~(MW: OK now?)~~ 'Keynes effect': a level of output higher than the NAIRU level causes – it is argued – an acceleration of inflation (due to money wage increases) which increases the demand for money and the rate of interest, so investment decreases, and unemployment returns to the NAIRU level. Without the theory of investment criticized above, which is the basis of the decreasing AD curve in the popular AD-AS diagram, there would be no tendency to the NAIRU, and the theory would predict an indefinite acceleration or decrease of the rate of inflation, clearly in contradiction with the historical record.

investment does not appear, it is likely that the Central Bank will have recourse to direct controls on the (rate of increase of the) money supply. There can be little doubt that a sufficiently restrictive monetary policy can cause a rise of unemployment; and there can be little doubt that a sufficient increase of unemployment can slow down the increases of money wages. But it is a way to fight inflation that causes the entire weight of the operation to be borne by wage labour, at the same time damaging the sales of firms, thus discouraging investment, and hence damaging the productive structure of the economy; other ways to fight inflation will be always possible; to pursue them or not is a political decision.

To concentrate exclusively on the rate of unemployment as the determinant of inflation means therefore a choice to exclude all other possible anti-inflation policies (e.g. decreasing the incomes of other groups, or national accords) from the range of admissible options; a clear anti-labour choice. To leave exclusively to an independent Central Bank the task to fight inflation by raising the rate of interest and restricting the growth of the money supply is, in good or bad faith, a way to avoid discussing who is to bear the costs of the fight against inflation − costs made greater than necessary by the accompanying waste of potential output. If what is wanted is a decrease of consumption, alternative and faster ways to achieve it are evident, e.g. an increase of the taxation on luxury goods; if what is wanted is that the sum of income claims on total output does not exceed what can be distributed, a way to obtain it is by *decreasing* the rate of interest and thus property incomes. (Nowadays the usual way to deny the feasibility of the latter policy is international capital mobility. And yet, capital controls did exist and work some decades ago, evidently they are not so impossible − it's the political will to make them operative that is missing.) However, since it is generally admitted that the damage caused by inflation *per se* is very small (at least as long as inflation does not degenerate into hyperinflation), the insistence on the need to extirpate inflation suggests that the real aims lie elsewhere. Kalecki's clear and concise "Political aspects of full employment" (1943) remains a most convincing indication of what the real aims most probably are: increasing unemployment as a way to weaken wage labour. Unfortunately, one cannot expect the real aims to be clearly spelled out in a democracy; however some indication occasionally emerges[25].

[25] "In the early days of the Thatcher government it was fashionable to suggest that tight monetary policy would reduce inflation without affecting anything else. The idea was that the simple announcement of a tough target for the growth of the money supply would, through creating expectations of slower inflation, be enough to hold down wage and price increases.... This proved ludicrously optimistic.... A major difficulty with the approach is how to win electoral support for a programme of squeezing the economy. This is where academic doctrines like monetarism come in. They serve as a rationale for abandoning a fundamental feature of the postwar consensus − government's responsibility to maintain full employment. J. S. Fforde, an adviser to the governor of the Bank of England, outlined the strategy:

> It would have been possible to initiate such a strategy with a familiar 'Keynesian' exposition about managing demand downwards, and with greater concentration on ultimate objectives

11. Let us return to the supposed need to decrease labour costs in order to increase employment. This need is the main motivation of the insistence on 'flexibility'. But, unless unemployment subsidies are strengthened (and the tendency is certainly not in this direction), the result of lesser firing difficulties for firms is greater insecurity for labour, which greatly worsens the quality of life even if the real wage does not decrease, and anyway − if the real wage per unit of labour time does not decrease − has unclear effects on the cost of labour because labour quality would seem to be inversely correlated with job security: the nations where workers have a reputation of being serious, dedicated, competent, productive are not the ones where there is more 'flexibility' but rather the ones where labour, supported by a solid welfare state, shares in the fruits of an efficient management of firms and of society as a whole. Thus 'flexibility' helps profits in so far as it decreases real wages by weakening labour's bargaining power. That it helps employment (in a closed economy) must be doubted, owing to the non-existence of the decreasing demand curve for labour; the decreased multiplier owing to the decreased average propensity to consume suggests rather the opposite.

12. The rejection of the marginalist/neoclassical approach to distribution also has implications on the justifiability of taxation for redistributive purposes. The marginalist approach implies that incomes fundamentally reflect the contributions of the several economic agents to social welfare; the higher wages of better paid labour, for example, reflect the greater value of its marginal product. Taxation of property income or of the higher labour incomes is then perceived as a modification, imposed by the majority's political decisions, of an income distribution which in itself would be

---

than on intermediate targets. But this would have meant disclosing objectives for, *inter alia*, output and employment. This would have been a very hazardous exercise, and the objectives would have been unacceptable to public opinion or else inadequate to ensure a substantial reduction in the rate of inflation, or both. Use of strong intermediate targets, for money supply and government borrowing, enabled the authorities to stand back from output and employment as such and to stress the vital part to be played in respect of these by the trend of industrial costs. In short, whatever the subsequent difficulties of working with intermediate targets, they were vitally important at the outset in order to signal a decisive break with the past and enable the authorities to set out with presentational confidence upon a relatively uncharted sea. (Fforde, 1983, p. 207)

..... Manufacturing output fell by a colossal 15 per cent in 12 months from December 1979." (Armstrong, Glyn and Harrison, 1991, pp. 307-8) The book from which this long quotation has been taken shows convincingly that the end of the so-called 'Golden Age' of postwar growth in the 1970s must be attributed above all to a conscious decision by the dominant classes to weaken wage labour through an increase of unemployment, a decision prompted by the rise in the share of wages and the political agitations at the end of the 1960s, and made possible by the disappearance of the fear that the working class would turn communist if maltreated - the fear that explains the postwar concessions to labour (the policies aimed at high levels of employment, and the development of the welfare state).

just and fair, reflecting the difference of the individual contributions to social welfare. Whence the subjective feeling, frequent among high income perceivers, that they are being obliged by the electoral system to give away to the poorer strata part of what in fact should be theirs not by right of property but by the right to be rewarded for what one contributes. This feeling of righteousness in the opposition to progressive taxation would be much more difficult to justify if a classical perspective on the determinants of income distribution were more widely accepted[[26]].

Also, it would be easier to argue that there is no reason why the people of regions suffering from special difficulties (e.g. a crisis of the dominant industry) should be the sole ones to bear the costs of the crisis. In Italy, for example, it would be easier to argue that there is no reason why Southern labourers should accept lower wages, since it is not their fault if labour productivity is generally lower in the South.

PART III: GROWTH

13. *Fourth*: the marginalist supply-side vision of the determinants of growth must be replaced with a radical Keynesian approach that will deny even for the very long period the tendency of growth to be determined by the availability of resources and the propensity to save.

The currently dominant vision of the determinants of growth is that growth depends on the propensity to save. Income is considered to oscillate around the full-employment (or natural-rate-of-unemployment) level, and therefore to be determined on average by technology, labour supply and stock of capital and of natural resources. The share of income that goes to investment depends on the propensity to save, which is therefore the main determinant of the growth rate of the capital stock. It follows that if it is desired that Y grows faster, it is necessary to consume less and to save more.

The principle of effective demand, associated with the abandonment of the full-employment assumption, entails a radically different perspective, that argues that generally resources are underutilized, both in the short and in the long run, because their utilization depends on the level of effective demand, which is very seldom such as to entail the near-full employment of labour, and is never close to entailing the maximum utilization of productive capacity. This implies that, except in truly extreme circumstances, there is no need to decrease consumption in order to increase investment: the flexibility of production (and of labour supply) in response to changes

[26] At present in Italy there is a general acceptance among politicians of the argument that taxes should be decreased. That fiscal pressure has been and is higher in Sweden than in Italy, with a resulting better functioning of society, is never mentioned. I would tend to attribute the timidity even of left-wing politicians on this issue to the mistaken feeling that there are no solid arguments to oppose to the pro-market arguments that dominate official ideology since the 1980s. As Keynes said, politicians are usually slaves of defunct (or almost defunct) economists.

in demand means that the increased investment can go together with increased consumption, all that is necessary is that capacity utilization increases in reply to an increase of aggregate demand; which is precisely what will result from an increase of investment, through the multiplier (Garegnani 1992, Trezzini 1995, Garegnani and Palumbo 1998, Setterfield (ed.) 2002). To explain growth, what must be explained is what determines the growth of the autonomous components of aggregate demand; productive capacity will tend to adjust to the growth of demand, i.e. to be determined by it rather than determining it. The flexibility of capacity utilization in the capital-goods industries means that in each period production of capital goods will be higher or lower, depending on whether investment is higher or lower; and investment is largely motivated, over longer periods, by the desire to adjust capacity to demand, therefore investment will be higher on average, causing a higher growth rate of the capital stock, if aggregate demand grows faster. Now the growth rate of aggregate demand certainly depends in turn on the growth rate of investment, but not only of investment; and it appears highly likely that over very long periods growth must be sustained and stabilized by the growth rate of other more truly autonomous expenditures such as state expenditure, or exports. Of course in some instances (state *dirigisme* aimed at accelerating industrialization) investment is truly autonomous in large part, but this is no longer the case in the advanced capitalist countries.

I try to illustrate the resulting flexibility with the help of some simple formulas of Harrodian flavour. I leave aside technical progress. Suppose income distribution is given, hence normal relative prices and production techniques are given. This gives some legitimacy to assuming that capital can be measured as K, and to assuming a given normal (i.e. desired, planned) capital-output ratio $v^*=K/Y^*$ where Y^* is gross normal-capacity output, i.e. the output in view of which the capital stock K was produced. Assume Y=C+I, where I is gross investment, C=cY is consumption, and the gross average savings propensity is s=1-c, hence gross savings are given by S=sY. Capital depreciates radioactively at an average rate d. The growth rate of the capital stock in continuous time is $g_k=(I-dK)/K=I/K-d$. The Harrod warranted rate of growth g_k^* is the constant growth rate obtained when $Y=Y^*$ continuously, given by:

$$g_k^* = I/K - d = S/K - d = sY^*/K - d = s/v^* - d.$$

The actual rate of growth is the one associated with a Y that need not be equal to Y^*. Define the rate of utilization of capacity as $u=Y/Y^*$. Normal capacity utilization of course implies u=1. Then

$$g_k = I/K - d = S/K - d = sY/K - d = s\frac{Y}{Y^*}\frac{Y^*}{K} - d = suY^*/K - d = su/v^* - d.$$

Thus

$$g_k+d = u(g_k^*+d).$$

This formula, simple as it is, yields the following insight that I believe will survive more complicated analyses: with a given average propensity to consume, a

faster growth rate implies a higher rate of capacity utilization. One can then ask whether the change in the rate of capacity utilization required in order to, say, raise the growth rate by two percentage points is implausibly high. Suppose d=10% (an underestimation, the moment one remembers that capital is in large part circulating capital) and g_k*=5%; then a growth rate of 7% requires u=17/15=1.13, i.e. a rise of the rate of capacity utilization by 13%, an overestimation due to the very low value assumed for d. When one remembers that the data on capacity utilization for the 1980s in the USA indicate an average utilization rate around 82% of what the entrepreneurs themselves judge to be normal utilization, which goes down to 76-79% in the early 1990s, a rise by 13% of average utilization would appear quite feasible: it must also be remembered that normal utilization is no upper barrier to production, which if necessary can be increased by overtime etcetera[27]. Furthermore the required percentage increase of u is smaller if there is some autonomous non-capacity-creating expenditure, e.g. public expenditure G: then the required increase in capacity utilization is lower than if G=0, because a given percentage increase of I without an increase of G implies a smaller percentage increase of Y than if G=0. Thus in another paper (Petri 2003a) I have presented a simple numerical example where an initially stationary economy starts to grow because G starts to grow at 2% per year, pulling up Y and then I owing to the accelerator, so that (under assumptions about coefficients and lags that prevent explosive instability) Y and K too end up by growing at about 2% a year, and the average rate of utilization of capacity does not increase by more than 5%. Thus I would argue that generally there is no obstacle to growth rates even 2 percentage points *above* the Harrodian warranted growth rate; of course, there is even less obstacle to growth rates *lower*, even considerably lower, than the warranted growth rate; thus since 1990 Japan has had for over ten years a growth rate close to zero, with an enormous loss of potential production and of potential increases of productive capacity.

Now, there is no reason to expect the utilization rate to be on average the normal one over long periods. If for example problems in maintaining the growth rate of exports dampen the growth rate of a nation, then u becomes less than 1 and may remain lower than 1 for many years in a row; even if afterwards the growth rate were then to return to the warranted one, the loss in potential productive capacity would not be compensated unless the growth rate went above the warranted one for a similar number of years, and there is no reason to expect that this will be spontaneously the case. Up to Word War 2 there was no compensation for the Great Crisis of the 1930s.

We can conclude that the nearly universal presence of unemployment in

[27] The questionnaires also ask entrepreneurs to indicate the utilization rate relative to a 'national emergency' production level, and the replies indicate that this national emergency production, presumably close to technically maximum production, is 40% to 80% greater than normal production.

advanced industrialized nations implies a considerable and avoidable waste of potential production, and that if the state wants to raise the growth rate of the economy, then, within limits from which economies usually remain quite far, it can achieve it without any need to raise the average propensity to save, by simply stimulating investment; the resulting increase in Y made possible by the increase in capacity utilization[28] will also include an increase of consumption. If the state does not do it, the reason will have to be looked for, again, in the considerations advanced by Kalecki in his famous "Political aspects of full employment": the fear of the strength the labour movement would acquire with lower unemployment.

One consequence of this different, demand-led approach to employment and growth is that the standard theory of taxation, as well as the welfare economics that is its foundation and that assumes the full employment of resources, need radical reconsidering − a task still to be started, as far as I am aware.

PART IV: OPEN ECONOMY AND PUBLIC DEBT

14. I am even less of an expert on open economies and on public debt than on the issues I have discussed so far; however, it seems to me that some implications of the criticisms of Part I are so clear that I can venture to point them out.

In an open economy, even a classical-Keynesian approach does not deny that a decrease of real wages can increase employment, by increasing the international competitiveness of the nation's products and hence stimulating exports.

However, this way of increasing employment in a single nation can be criticized on two accounts at least, the first one deriving from an extension of the principle of effective demand to the world economy, the second one deriving from considerations similar to those advanced in §12 above.

Firstly, in this way one simply exports unemployment abroad (by subtracting sales from other nations), and in fact one exports more unemployment than one eliminates at home, because in the first nation the average propensity to consume has diminished, with a reduction of the world-wide multiplier. If the other nations counter by compressing their own real wages, the most probable result is a worldwide recession; if they simply devalue, the effect of the series of competitive devaluations is probably a decrease of investment owing to increased uncertainty. It is unclear why one should risk such a result, when other nations might be in turn favourable to simultaneous policies of expansion of aggregate demand, which would allow all nations to import more since they would be simultaneously exporting more. Thus if a

[28] Labour supply will almost never be a constraint, because in the short run there usually always is some unemployment, some disguised unemployment, and the possibility of temporary overtime; in the longer run, various 'reserve armies', e.g. female potential labour supply, can be better utilized, and then there always is the resource of immigration.

classical-Keynesian approach were generally accepted, a majority of voters in all nations with unemployment problems should be favourable to expansionary economic policies, and this, with some co-ordination, would avoid the external constraint. (Unless, of course, capitalists decide that they need unemployment in order better to control wage labour and keep the rate of profit high even at the cost of a lower growth rate, thus adopting the stance described by Kalecki.)

Secondly, it is not clear why it should be wage labour alone to bear the costs of a national effort to increase international competitiveness so as to slacken the external constraint. All incomes, including (reintroducing controls on capital exports) incomes from capital, could contribute, and it is a political decision whether to compel them to share in the sacrifices[29] or not − assuming that sacrifices are indispensable. In fact, policies that decrease the average propensity to import without decreasing national output do exist, for example increased taxation on imports for which there exist national perfect substitutes (e.g. cars, in nations with a national car industry); and the main problem is whether they would induce retaliation or not; but a government that decreases the propensity to import of a nation but increases in the same proportion national income does not reduce imports, and then the hostility of other nations has little foundation. Actually non-neoclassical Keynesian economists have repeatedly argued in the past that, given the difficulties of international co-ordination due to national rivalries, a decrease of import propensities, by slackening the external constraint on single-nation expansionary policies, would end up favouring simultaneous (although separately decided) national expansionary policies and thus a greater world employment.

15. The positive or negative evaluation of public debt too is heavily dependent on the economic theory of employment and growth that one considers correct.

If one believes that the long-run growth path of the economy is sufficiently close to a full-employment path, then in each period income is fundamentally given, and if the state takes a greater share of it, less is left for private investment and consumption. Since, it is argued, generally the state spends on consumption most of its revenue, the result of financing state expenditure with public debt is that the state subtracts part of private savings from their natural destination, which is productive investment. Thus more deficit to-day means less investment to-day and hence less capital tomorrow (and, in so far as investment is also the main avenue through which technical progress gets absorbed by the economy's productive structure, it also means less international competitiveness). Concretely, it means that subsequent generations

[29] Recourse to wage decreases every time the national competitiveness suffers can have the negative side effect of reducing the incentives to keep up with technical progress. Managers and owners too can work more or less, and they may well decide to take it easy rather than worry and risk with modernization and innovation, if there always is the way out of a decrease of labour costs.

will be less rich. This is the sense in which it can be acceptable, in this perspective, to claim that public debt imposes a burden on subsequent generations[30]. Public debt, unless it is held by foreigners (but then the important thing is that it is *foreign* debt, not that it is public debt), is a debt that citizens of the nation owe to citizens of the nation, therefore it is a burden on some but compensated by a right to an income for others; if the state were to annul by law all public bonds, it would operate a redistribution but not a decrease of national income. In this perspective the true nationwide burden is the decrease of possible national future consumption relative to the level attainable with a greater capital accumulation. This burden is not correctly perceived by savers, it is argued, because they have the impression of obtaining a return on the savings employed to purchase public debt as much as on the savings that go to finance investment. It is more correct, it is argued in conclusion, that savings should go to their natural employment, productive investment, and if the state wants to consume more it is better that it makes the effects clear by subtracting income via taxation.

In a classical-Keynesian perspective, on the contrary, production depends on demand and if the state spends more, it stimulates production and increases incomes. For example in the simplest case it is well known that Haavelmo's theorem shows that if the state increases expenditure and taxation by the same amount, national output increases by the same amount. A similar effect is caused by an increase of deficit spending. Therefore it is true that the state's deficit spending subtracts part of the given private savings from other uses, but it is a part that without that deficit spending would have not existed at all because national income would have been lower. It can indeed be shown that if production adapts to demand, the increased deficit spending increases national output so much that private savings increase by exactly the same amount, assuming investment to be unchanged (Ciccone 2002). Therefore the opposite is true of what is argued in the neoclassical approach: up to limits never approached of truly complete utilization of productive capacity (cf. §13), more deficit spending means more production without any need for a reduction of investment. In fact, owing to the accelerator, investment (which was kept fixed in the previous result) cannot but be *stimulated* by any durable increase in production, and therefore a continuous increase of public expenditure means more, and not less, investment, and hence more capital and more competitiveness in subsequent years[31]. This means a greater potential future production and hence a greater possibility to decrease the future percentage tax burden (a decrease already made easier by the decreased need to

[30] The assumptions necessary in overlapping-generation models to cause any additional burden on subsequent generations are implausibly restrictive, cf. Ciccone (2002, ch. 3).

[31] Ciccone (2002), in an excellent essay that I can only hope will become soon available in English, shows that it is also perfectly possible that the stimulus to income resulting from an increased deficit causes a decrease, rather than an increase, of the ratio of public debt to income, both in the short and in the long run.

support unemployed workers, and by the greater contributions toward retirement funds coming from the higher employment). On the contrary, attemps to decrease public debt through less state expenditures or more taxation mean contractionary effects on private expenditure too, hence a lesser stimulus to investment and also a smaller tax revenue owing to the decrease of national income, that makes the deficit reduction more difficult to obtain, with a risk of a vicious circle of heavier taxation - less income - still heavier taxation - still less income, and of further negative effects due to downward multiplier-accelerator interactions.

CONCLUSIONS

16. I would not want to give the impression that, once the marginalist/neoclassical approach is replaced with a classical-Keynesian one, everything becomes easy. The difficulties of full-employment policies remain substantial, but they are above all political: the oppositions to be surmounted are formidable, as pointed out by Kalecki. However, if mistaken theories that justify the abandonment of employment-increasing policies are not abandoned, things will be even more difficult. The non-rich must first of all be convinced that what they would like to obtain is feasible (perhaps with adequate institutional changes), and morally justified; otherwise they will never muster the necessary political determination to go some way toward obtaining it.

Of course this paper cannot be sufficient to persuade of the correctness of the arguments presented. But one thing it should have made clear: in the present theoretical situation, before taking positions on issues of economic policy all serious economists must have studied in depth the question of which is the correct approach to income distribution and employment, without taking for granted that the traditional views are the correct ones.

REFERENCES

Armstrong, P., A. Glyn, J. Harrison, 1991, *Capitalism since 1945*, Oxford: Basil Blackwell.

Ball, L., 1999, "Aggregate demand and long-term unemployment", *Brookings Papers on Economic Activity*, no. 2, 189-251.

Burdekin, R. C. K., and P. Burkett, 1996, *Distributional conflict and inflation*, London: Macmillan.

Chirinko, Robert S. (1993), "Business fixed investment spending: modeling strategies, empirical results, and policy implications", *Journal of Economic Literature*, December, pp. 1875-1911.

Ciccone, R., 2002, *Debito pubblico, domanda aggregata e accumulazione*, Rome: Aracne.

Coen, R. M., R. Eisner, T. Marlin, S. N. Shah, 1999, "The NAIRU and wages in local labor markets" *American Economic Review*, 89:2, May.

De Francesco, M. A., 1993, "Norme sociali, rigidità dei salari e disoccupazione involontaria", *Economia Politica*, n. 1.

D'Ippolito G. (1987), 'Probabilità di perverso comportamento del capitale al variare del saggio di profitto: il modello embrionale a due settori', *Note Economiche*, 2, 5–37.

Eatwell, J. L., and M. Milgate eds., 1983, *Keynes's economics and the theory of value and distribution*, London and New York: Duckworth and Oxford University Press.

~~Ciccone, R., 1990, "Accumulation and capacity utilization: Some critical considerations on Joan Robinson's theory of distribution", in Bharadwaj, K., and Schefold, B., eds., 1990, *Essays on Piero Sraffa*, London: Unwin and Hyman (repr. 1992: Routledge, London), 417-429.~~

~~Eisner, R., 1996, "The retreat from full employment", in P. Arestis (ed.), *Employment, Economic Growth and the Tyranny of the Market: Essays in Honour of Paul Davidson*, Vol. 2, Aldershot: Edward Elgar, pp. 106-30.~~

Fair, R. C., 1999, "Estimated inflation costs had European unemployment been reduced in the 1980s by macro policies", *Journal of Macroeconomics*, Winter, vol 21, no. 1.

Fforde, J., 1983, "Setting monetary objectives", *Bank of England Quarterly Bulletin*, June.

Fisher, F. M., 1983, *Disequilibrium foundations of equilibrium economics*, Cambridge: Cambridge University Press.

Galbraith, J. K., 1997, "Time to ditch the NAIRU", *Journal of Economic Perspectives*, vol. 11 no. 1, Winter, 93-108.

Garegnani, P., 1978-1979, "Notes on consumption, investment and effective demand. Part I, Part II", *Cambridge Journal of Economics*; as repr. in Eatwell and Milgate, 1983.

Garegnani, P., 1990, "Quantity of capital", in J. Eatwell, M. Milgate, P. Newman, eds., *Capital Theory*, London: Macmillan.

Garegnani, P., 1992, "Some notes for an analysis of accumulation", in J. Halevi, D. Laibman, E. Nell eds., *Beyond the steady state: a revival of growth theory*, London: Macmillan, 47-71.

Garegnani, P., and A. Palumbo, 1998, *Accumulation of capital*, in H. D. Kurz, N. Salvadori, eds., *The Elgar Companion to Classical Economics*, vol. I, Aldershot: Edward Elgar.

Hall, R. E., 1993, "Macro Theory and the Recession of 1990-91", *American Economic Review*, May, 275-279.

Kalecki, M., 1943, "Political Aspects of Full Employment".

Lindbeck, A., and D. J. Snower, 1999, "Price dynamics and production lags", *American Economic Review*, vol. 89 no. 2, May.

Mongiovi, G., and F. Petri, eds., 1999, *Value, Distribution and Capital. Essays in honour of Pierangelo Garegnani*, London and New York: Routledge.

Petri, F., 1978, "The difference between long-period and short-period general equilibrium and the capital theory controversy", *Australian Economic Papers*, December.

Petri, F., 1999, "Professor Hahn on the Neo-Ricardian criticism of neoclassical economics", in Mongiovi and Petri (1999), 19-68.

Petri, F., 2000, "On the likelihood and relevance of reverse capital deepening", Quaderni del Dipartimento di Economia Politica no. 279, Università di Siena.

Petri, F., 2003a, 'Should the theory of endogenous growth be based on Say's Law and the full employment of resources?', in N. Salvadori (ed.), *The Theory of Economic Growth: a 'Classical' Perspective*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar, pp.

139–60.
Petri, F., 2003b, “Introduction”, in Petri and Hahn 2003.
Petri, F., 2003c, ‘A “Sraffian” critique of general equilibrium theory, and the classical-Keynesian alternative’, in Petri and Hahn (2003), pp. 387–421.
Petri, F., 2004, *General Equilibrium, Capital and Macroeconomics*, Cheltenham: Edward Elgar.
Petri, F., 2006, “General Equilibrium Theory and Professor Blaug”, Quaderni del Dipartimento di Economia Politica no. 486, Università di Siena.
Petri, F. and F. Hahn (eds) (2003), *General Equilibrium: Problems and Prospects*, London: Routledge.
Pivetti, M., 1991, *An essay on money and distribution*, London: Macmillan.
Romer, D., "Keynesian macroeconomics without the LM curve", *Journal of Economic Perspectives*, 14:2, Spring, 149-169.
Rowley, R., 1995, "History, structure and the wandering natural rate of unemployment", *Economie Appliquée*, 48(1), 133-55.
Sawyer, M., 1997, *The NAIRU: A critical appraisal*, The Jerome Levy Economics Institute Working Paper No. 201.
Setterfield, M., ed., 2002, *The Economics of Demand-Led Growth*, Cheltenham: Edward Elgar.
Setterfield, M., D. V. Gordon, L. Osberg, 1992, "Searching for a will o' the wisp: an empirical study of the NAIRU in Canada", *European Economic Review*, 36(1), January, 119-36.
Solow, R., 2000, "Toward a macroeconomics of the medium run", *Journal of Economic Perspectives*, vol. 14 no. 1, Winter.
~~Stirati, A., 1999, "Inflation, unemployment and 'hysteresis' – A classical approach", *Quaderni del Dipartimento di Economia Politica*, Università di Siena, no. 239.~~
Trezzini, A., 1995, "Capacity utilisation in the long run and the autonomous components of aggregate demand", *Contributions to Political Economy*, vol. -14, 33-66.
U.S. Census Bureau, *Survey of Plant Capacity 1999*, U.S. Department of Commerce, March 2001.