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Piketty and the increasing concentration of wealth: some implications of alternative theories of distribution and growth

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Abstract

Thomas Piketty's Capital in the Twenty-First Century has been spectacularly successful and a reason for this might be the fact that the theory that underlies his analysis is mainstream theory, with some adjustments or reservations on specific points, but never on the fundamentals. Thus, while Piketty's empirical analysis often challenges received views and supports a non-apologetic view of capitalism's dynamics, the book at the same time speaks a language which is common to mainstream economists around the world. This however is not always conducive to consistency and interpretative accuracy. A different theoretical perspective (and some empirical evidence) might lead to questioning some of the book's central claims.

Keywords: Piketty, inequality, income distribution, capitalist dynamics

JEL Codes: D31, E25, P10

1. Introduction[1]

Thomas Piketty's *Capital in the Twenty-First Century* (2014) has been spectacularly successful and it deserves this success for several reasons. The book is well written, and its clear and simple exposition makes it accessible to non-economists without putting off or boring the specialists. It deals with urgent issues, yet is enjoyable to read, partly owing to the relevance of the topic and the long-term historical perspective, and partly because of Piketty's charming use of illustrations and insights from novels, historical episodes and current affairs. Another reason for the book's success, I believe, is the fact

[1] I wish to thank Gary Mongiovi and an anonymous referee for their comments and advice.

that the theory that underlies Piketty's analysis is mainstream theory, with some adjustments or reservations on specific points, but never on the fundamentals. Thus, while Piketty's data and his interpretation of them often challenge received views and support a non-apologetic view of capitalism's inherent social dynamics (which may explain some of the attacks that have been levelled at his argument), the book at the same time speaks a language which is common to mainstream economists around the world. This may facilitate the diffusion of the book's ideas and enhance its ability to stir debate; but it is not always conducive to consistency and interpretative accuracy. A different theoretical perspective (and some empirical evidence) might lead us to question some of the book's central claims. Before moving on to these points, I think it useful to summarize some particularly interesting facts that emerge from Piketty's empirical analysis.

2. Empirical Evidence *versus* Received Views

Public discourses as well as economic analyses in the recent past have often emphasized wage inequalities and intergenerational income inequality. Although there have been profound changes in income distribution between labour and capital, which have been highlighted even in reports from major international institutions (IMF 2007; OECD 2008), this issue had not been centre-stage until the publication of Piketty's book. A real merit of the book is that it reminds us with a certain force that top incomes are to a very large extent incomes from capital and wealth. In the US in 2007, about 40% of the top 1% of individual income is income from wealth alone, and the weight of income from wealth increases as one goes further up in income rankings. The rest of the income of the top 1% is mostly managerial salaries (Piketty 2014, p. 302). Furthermore, a large portion of individuals' capital and wealth is inherited (about 70% in contemporary France; ibid., p. 402). Although inequality in the distribution of income from labour has increased, particularly in the US, owing to the explosion of top managers' incomes, wealth remains everywhere much more concentrated and unequally distributed than income: in the US in 2010 the top 10% of wealth-holders owned 75% of total wealth, a proportion close to the historical peak reached in 1910 (ibid., pp. 348–349).

The data also show that generational differences are not very important: differences in income distribution remain unaltered when one looks at individuals' lifelong incomes rather than at incomes at a particular point in time (ibid., pp. 299–300). This is an interesting point, since it is widely believed that in affluent European and US societies, low incomes are earned largely by young people at the beginning of their working life who are taking low-skill and low-paying temporary jobs to earn some cash while they are at school, or who accept low pay in exchange for experiences that will be useful to make a career. In such circumstances low income would not be associated with poverty, but would only mark a particular period in one's life, when youth makes relatively low living standards acceptable, while later on the same person would be better off. Though this may be the case for a certain number of people, it is not the norm, and overall, income inequality remains unchanged—at a high level—when we look at lifetime averages. This casts some doubt on the recent emphasis in public discourse on the alleged generational 'conflict' between older people, who are retired or near retirement, and younger workers, who are near the start of their working lives.

Another point made by Piketty, which is familiar to experts but generally ignored in public discourse, is that social mobility is very low in the most unequal societies (the US and the UK, with Italy not far behind) and highest in the more egalitarian societies of northern Europe.[2] It could in fact be argued that merit and talent are more important *vis-à-vis* family status in more egalitarian society. This ought not to come as a surprise: egalitarian societies provide broad-based access to education, healthcare and economic opportunities, so that talented and hardworking people can achieve success even if born into families at the lower end of the income and wealth distribution. In explaining this difference Piketty assigns great weight to the different education systems, and to the extremely high cost of education in the US. Piketty (2014, p. 485) observes that the average family income of Harvard students is equal to the average income of the top 2% population in income distribution; whereas in France, which, like other European countries, has a social mobility midway between the US and Nordic countries, the average family income of students at Sciences Politiques, one of the most prestigious 'Grands Ecoles', is equal to the average of the top 10% in income distribution.

The costs of education and the selection procedures of universities are undoubtedly important factors. But it is reasonable to suppose that a high employment rate, greater equality in income distribution, and a well-developed social safety-net might also promote social mobility, since they enable young people of even modest means to concentrate on their education rather than working at unchallenging jobs that impart no skills.[3]

3. Incomes from Capital, 'Rent', and the Patrimonial Society

As Piketty notes, in economic discourse 'rent' has become the culprit and 'competition' its enemy—so much so that in a 2012 interview European Central Bank President Mario Draghi declared that 'we must fight against rents' (quoted by Piketty 2014, p. 423). Competition is taken to mean privatizations and the deregulation of markets for labour and goods, while 'rents' are associated with any artificial barrier to

[2] The correlation between the earned income of parents and that of their offspring is 2/3 higher in US than in Sweden, indicating significantly lower economic mobility in the US.

[3] The point is of particular interest for Italy, where low social mobility is typically attributed to 'familism' and several other alleged national vices. Yet in Italy today, inequality is very close to that existing in the US and the UK, higher than in other European countries, and this, along with slow growth and high unemployment rates might well be a significant factor at the heart of a degree of social mobility almost as low as in Anglo-Saxon countries.

competition, that is, with any sort of contract or regulation that does not reflect 'free market forces'. In this view then, not only firms selling in monopolistic conditions, but also unionized workers are 'rentiers'; so are taxi-drivers or hairdressers whose numbers are regulated by a system of licencing. In this context 'rents' (but the term 'extra-profits' would be more appropriate) derive from monopoly or imperfect competition, possibly created by public regulations or institutions. However, as Piketty correctly reminds us, 'monopoly rents' are not the whole story, and not the most important part of it, and this way of thinking of 'rent' solely as the result of imperfect competition or monopoly is a very peculiar and recent phenomenon. Traditionally in economics rent and profits are the names given to the incomes derived from the ownership of land or capital, which *cannot in any way be reduced or eliminated by competition*.

There are in fact different ways of explaining profits and rents. In the now dominant neoclassical approach, scarcity and productivity at the margin are what account for these incomes. In the classical economists and Marx, the source of profits is private ownership of the means of production, which prevents workers from obtaining the entire product in the form of wages; rent too was regarded as a result of private ownership of land of different qualities (fertility, location, richness of ore in the case of mines, etc). In either theoretical approach however these incomes will certainly not be eliminated by competition, though in the classical approach income distribution is always the result of power relations, even when free competition prevails.[4]

At any rate, a central point raised by Piketty is that if property becomes ever more concentrated, so will incomes from property accrue to a smaller fraction of the population. Not only is wealth far more unequally distributed and concentrated than income from labour but, according to Piketty's analysis, there are forces at work that tend to bring about the re-emergence of a patrimonial society and further inequality and concentration. One such force is that the proportion of wealth to annual income tends to increase over time, leading to an increase of incomes from wealth as a share of total annual income. Since wealth is more unequally distributed than income from labour, this also implies that top incomes will increasingly be incomes from wealth rather than from managerial and professional labour.[5] Not only does wealth tend to increase as a proportion of total income, but it also tends to become ever more concentrated as a result of the fact that the rates of return on wealth tend to be higher the larger is the

[4] The classical or surplus approach to income distribution is currently being revived following Sraffa's contribution to its clarification and development (see Garegnani 1984). In this approach prices and distribution are determined without any reference to factor demand curves (the legitimacy of which is at any rate refuted on the basis of the logical flaws in neoclassical capital theory - see below). Accordingly, no tendency to full employment of labour is supposed, and distribution of income between wages and profits is regarded as the result of historically acquired living standards and power relations, in turn affected by economic and institutional circumstances (Stirati, 1992). Competition brings about a tendency to equalization of the rates of profit and of wages of labour with the same skills.

[5] Actually, in the neoclassical approach followed by the author, the increase of capital-income ratio should lead to a decrease of capital's (and wealth) rate of return r, with uncertain effects on the income shares, which might remain unchanged. However according to Piketty the fall in r determined by an increase of that ratio is less than proportional, and the latter causes therefore an increase in the share of incomes from capital and wealth.

individual's stock. Larger financial portfolios for example tend to have significantly higher returns (Piketty 2014, p. 430–431). According to Piketty these trends have been disrupted by the two world wars, which destroyed a large part of capital and wealth, and also in the ensuing three decades by a set of factors including exceptionally high income growth, historically low interest rates and returns on capital, and a number of policies like rent regulations, which tend to reduce the value of capital and wealth, and heavy taxation of top incomes and inherited wealth. In the long run however, according to Piketty, the historical data indicate that the dominant forces are those mentioned above.

4. Some Ambiguities: Wealth, Capital and the Underlying Theory

As mentioned, a central argument of the book is that historically wealth tends to increase faster than income, hence increasing the weight of the former *vis-à-vis* incomes earned through labour—not only in the sense that wealth and the income it generates acquire a greater role in the life of individuals and their economic status, but also in that wealth becomes ever more influential socially and politically. Piketty provides evidence that confirms these trends (except for the period from 1910 to 1975, for the reasons described at the end of Section 3), and forcefully argues that this is the result of the fact that the rate of return on wealth r tends to be higher (historically on average in the range of 4%–5%) than the rate of growth of income g (historically on average around 1.5%, with the exception of the 'golden age' that followed the Second World War). Thus the relation $r > g$ is at the roots of the economic and social dynamics of the capitalist economy. However, there are two different readings of this relationship and its consequences, which are to some extent connected with the ambiguous use of the terms 'wealth' and 'capital'. From the beginning Piketty explains that when he refers to private capital, what he is in fact talking about and measuring is the total wealth of private individuals (households), which includes the productive capital stock in a strict sense, real estate (which comprises both capital proper and homes used as residences by their owners), land, and all types of *net* financial assets, including, for example, public debt bonds (Piketty 2014, p. 48).[6] With private wealth so defined, and r representing the average return obtained on wealth, the importance of the relative magnitudes of r and g results from a simple but intelligent use of accounting. If we assume for simplicity that all incomes from wealth are saved, while income from labour is not saved (a simplification that is a reasonable approximation to reality, especially for the owners of

[6] To gain a clearer picture of the composition of wealth one needs to refer to the online data. At the address http//Piketty.pse.ens.fr/capitalisback >france.xls the table FR.6.c shows that in France, in 2010, net private wealth was about six times national income and consisted to a large extent of housing net of mortgage debt (375% of national income) and of *net* financial assets (225% of national income). Of these, non-equity assets such as bonds and saving accounts represented 165% of national income. From table Fr.6e we learn that 39% of net private wealth consists of financial assets of which about 60% are non-equity. In the public sector, assets are almost completely balanced out by public debt, so that the public sector adds very little (about 30% of national income) to total national net wealth.

large amounts of wealth and the earners of low to middle labour incomes), it follows that r is, by definition, the rate of growth of private wealth over time.[7] If r is greater than g this entails that the proportion of wealth to national income will be increasing over time. While giving an immediate intuition of the role of g and r, the simplification concerning the propensities to save is not necessary: provided that the wealthy tend to have higher saving propensity, the importance of r and g in determining the trends of the wealth to national income ratio holds true even under less simplified assumptions (for a detailed analysis see Aspromourgos, 2014, pp. 6-7).

Interpreted in the merely accounting and descriptive sense outlined above, the relationship gives an important insight concerning the forces at work, and historical trends of those same variables may suggest that there have been underlying forces tending to make for $r > g$. But this would still leave open the question of what determines those two variables, and whether institutions or economic policies can affect them.

However, the accounting interpretation, which is consistent with the way the data are constructed (total private net wealth in proportion to income), is not the dominant one in the book. It is replaced—or mixed up—with another interpretation that unlike the former has its basis in a specific economic theory. According to this other interpretation, which has its roots in neoclassical theory and a canonical exposition in the Solow growth model, the relationship between g (the rate of growth of national income), the capital–income ratio, and r (the rate of return) is derived from a theory in which r represents the rate of profit, that is, the return on the *capital* stock used in production, which in turn, in this approach, reflects capital's marginal product in full employment equilibrium (Piketty 2014, p. 228). In Solow's model the equilibrium rate of growth of the economy g^* will be equal to the 'natural' rate of growth ensuring continuous full employment, which is equal to the sum of the rate of growth n of population (labour force) and the growth rate p of output per worker due to technical change, so that

$$g^* = n + p$$

At the same time, in order to ensure continuous equilibrium between aggregate supply and aggregate demand, and between the actual and the desired capital stock, the equilibrium growth rate must be

$$g^* = s/v$$

where s is the propensity to save and v is the desired proportion between *productive capital* (not wealth) and output; v depends on the technological opportunities and the relative prices of capital and labour.

Since according to this approach the economy tends to full employment equilibrium, we will have in the long run

$$n + p = s/v$$

[7] By assumption we have that $S = rW$. Hence, $s = rW/Y$ and $\Delta W = sY$ that is $\Delta W = (rW/Y)Y = rW$. Accordingly, the rate of growth of wealth is r and if $r > g$ then W/Y is increasing over time.

Supposing that in the equations above all the parameters except *v* are exogenous, the tendency towards equilibrium is ensured by changes in *v* in turn determined by changes in the rate of profit and the wage rate, which occur whenever capital or labour becomes relatively more abundant. Hence the variables are expected to move in a certain way, consistent with the underlying theory. If $n + p$ decreases (for example as a result of demographic decline) market forces, according to the theory, will cause the actual rate of growth to fall, bringing it into line with the new full-employment equilibrium rate of growth g^*. If the propensity to save is unchanged, the ratio of the rate of profit over the wage rate will fall (since labour becomes relatively more scarce) and the proportion of capital stock to income (*v*) will rise; that is, cost minimization on the part of firms will cause them to adopt, from among the set of available techniques, those which utilize more capital per unit of output, thus causing a rise in *v* in the economy as a whole.[8] According to Piketty, and following this approach, g tends to equal $n + p$, and it is for this reason, given the demographic trend in the industrial world, that we must expect low rates of growth (i.e., lower than r); in addition, since n and hence g have been declining in the recent past, the *capital*-output ratio *must* have been on the rise.

In contrast with ex-post accounting relations (such as those in footnote 6), which are unquestionable, the complex theoretical relations we have just described are quite controversial. The tendency of long-run growth to equal $n + p$, which Piketty treats as indisputable from the outset, depends on the operation of the conventional substitution mechanism according to which a change in the rate of profit relatively to the wage rate leads to the adoption of techniques of production that utilize more intensively the factor whose price has fallen. But that very mechanism was shown to be logically unfounded in the capital controversy of the 1960s (Garegnani 1970; Pasinetti, 1966). Piketty is dismissive of the capital critique, but as we shall see, it has significant implications for his argument.

The other question raised by the theoretical analysis outlined above has to do with empirical evidence. Piketty provides ample evidence that the proportion of *wealth* to national income has been increasing since the beginning of the 1980s. But did the *capital/*output ratio *in production* increase also? This is what the model would lead to expect, since the average rate of GDP growth has been falling since the 1960s in both Europe and the US. Piketty draws no distinction between wealth and capital, and he provides no discussion of data on productive capital as distinct from wealth. If we rely on national accounts data for the capital stock (as collected in the Eurostat database) however, we discover that the proportion of the capital stock (including residential buildings, but not land or financial wealth) to GDP (both valued at current prices) has *not* increased on average since 1960 in the US and France (see Figure 1); a similar pattern is observed in several other industrial countries (Stirati 2013, p. 194).[9] These

[8] In fact, according to the model, the fall in the rate of profit relatively to the wage rate will generally lead at the same time to a fall in *s* and a rise in *v*.

[9] Note that the increase in the capital/GDP ratio since 2010 in France is more likely due to changes in the degree of utilization of capacity related to economic stagnation than to structural technological changes.

national accounting data concerning the capital stock are constructed by national statistical offices on the basis of past and current data on gross capital formation corrected for depreciation, using the perpetual inventory method and with the value of the stock estimated at current prices for new and used equipment.[10] It is these data that national statistical offices use in order to provide statistics of the output to capital ratio or other indicators connected to the production process.[11]

Thus, simple fact checking fails to confirm the predictions derived from the Solow model, which Piketty takes as the basis for his analysis of long-run trends. Also, it suggests that although wealth and capital may tend to have similar returns (net of risk premia) owing to competition and arbitrage, they are not one and the same thing, and while the former, according to the evidence provided by Piketty, grows with respect to income, this is not necessarily true of the proportion of productive capital to output (on this point see also Homburg, 2014, p. 8; Rowthorn, 2014, pp. 1278, 1282). Actually, many reviewers have taken issue with Piketty's lack of distinction between wealth and capital,[12] and with the way wealth is measured, which may largely reflect changes in the relative prices of some assets (Rowthorn, 2014), such as land (Homburg, 2014), real estate (Bonnet et al, 2014); financial assets (Galbraith, 2014), sometimes merely reflecting speculative waves of a transitory nature. This literature mainly raises the question of whether or not Piketty's way of measuring wealth is appropriate for issues concerning distribution and concentration of wealth and their long-term trends. The main point raised here with regard to such lack of distinction is that controversial analytical tools and conclusions concerning the *capital*-output ratio are used in connection with what is in reality a different thing, that is the trends of the *wealth*-output ratio.

National accounting data also show that operating surplus (net of depreciation) as a proportion of net capital stock has increased while the proportion of the wage to output per worker has fallen in France, the US and several other industrial countries (Stirati 2013, p. 193). Thus, the changes in income shares in the last decades seem to reflect changes in income distribution, that is, in the rate of profit, more than changes in the capital/output ratio, a finding which is in contrast with Piketty's emphasis on the latter

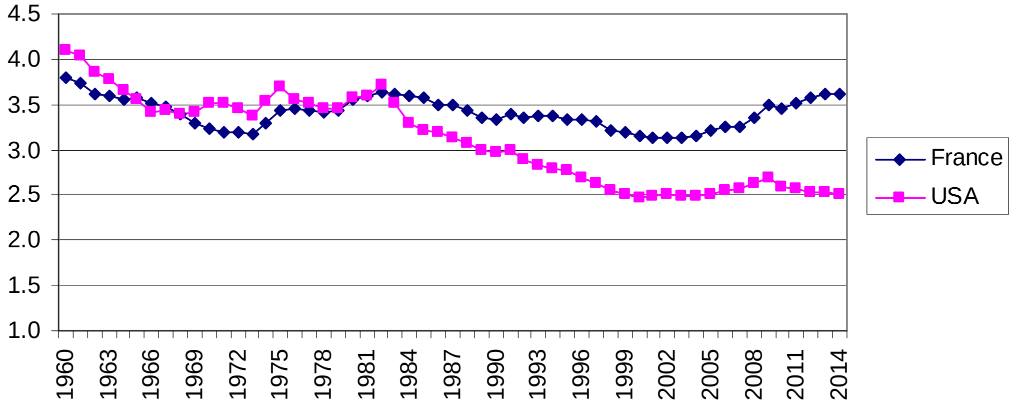
[10] Piketty too relies on national accounting data produced by national statistical offices in constructing his database for recent periods (for periods, that is, for which national account statistics exist). He uses however a different dataset, that is survey data on financial and non-financial assets.

[11] The fact that the capital/output ratio (with both aggregates measured at current prices) does not necessarily have an increasing trend should not come as a surprise: technical progress may generally reduce not only the quantity of labour required to produce a given output, but fixed and circulating capital inputs as well; secondly, since capital consists of produced inputs, technical change also affects, and reduces, the costs of producing capital goods. Hence the relative price of a sophisticated automated piece of machinery with respect to, say, a ton of bread produced today is not necessarily higher than the relative price of a hand-operated piece of machinery would have been in 1800 compared to the same amount of bread, each produced with the then available techniques. The general notion that today we produce in some sense with 'more capital' is widespread, but not necessarily correct. Production processes are more 'mechanized' for sure, but this does not entail that the value of capital (that is, of the capital stock at current prices) per unit of output (also measured at current prices) has increased.

[12] Besides the papers cited in the text, see also Varoufakis, 2014.

(or rather, on the increase in the proportion of wealth to output, which he does not distinguish from that between capital and output). In other words, it could be the case that the changes in labour and capital income shares, the increase in top managerial incomes (particularly in the US) and in incomes from capital at the top of the income distribution are interconnected, and that they all result from a '*wage squeeze*' triggered by changing policies and institutions (see also Mongiovi, 2015). This interpretation of the actual changes in income distribution is in fact suggested by economists who in other respects approach economic theory in very different ways (see Glyn 2006, Krugman 2007, Pollin 2003 and, for an overview, Stirati 2013).

Net capital stock on GDP, current prices



Source: Ameco database, February 2015; GDP is at factor costs, that is net of subsidies and taxes on production.

5. Alternative Theories of Distribution and Their Implications

As we have seen *r* and *g* are centre-stage variables in Piketty's analysis, and rightly so, since simple accounting shows that they are important factors behind the long-term changes in the proportion of wealth to national income. The explanation of *r* is part of a theory of income distribution, so we must turn to the theoretical foundation Piketty provides for his explanation of *r*.

The book opens with an account of the 2012 killing by the South African police of thirty-four mineworkers demonstrating for wage increases. Piketty's declared purpose is to remind us that income distribution remains a matter of class conflict and power relations. Yet this view is difficult to reconcile with his introduction, in Chapter 6, of the neoclassical production function and the associated notion of marginal productivity of capital. For these are constitutive elements of a theory of distribution which contends that capital and labour will be paid incomes equal to their marginal productivity, if market forces are left free to operate, and that it is in fact in the interest of all that this should be the case, since any deviation of factor prices from marginal productivity gives rise to resource misallocations and inefficiencies that reduce the overall amount of available income. In particular, within this approach, a rise in wages above their equilibrium level must cause unemployment, so that the income accruing to the workers *as a whole* need not increase and might even fall, depending on the elasticity of the labour demand curve.

On the whole, Piketty accepts the marginalist explanation of distribution. He allows for some exceptions concerning wage differentials, particularly in the case of top managerial incomes. Concerning the latter Piketty relies on a number of findings and arguments that cast doubt on the claim that top managers' incomes can be explained by their purportedly extraordinary ability to improve the profitability of the companies they manage. As he notes, while cross-country comparisons show similar improvements in productivity among developed economies, relative and absolute top managerial incomes have followed a very different pattern in the US *vis à vis* continental Europe and Japan. Furthermore, research on the performance of firms shows that top managerial pay rises with profitability, but regardless of whether the change in the firm's profitability is due to changes in conditions external to the firm (such as raw materials prices, the state of the economy etc.) or to 'internal causes' (such as skilful management) that enable the firm to perform particularly well compared to other firms in the same business and circumstances (Piketty, 2014, pp. 334–335). Thus, Piketty provides arguments and evidence against the notion that the extraordinarily high incomes of top managers are related to their contribution to economic performance (i.e. to their high marginal product), and he suggests that the peculiar position of firm executives in determining their own salaries—within limits imposed by social norms and conventions—can explain the explosion of such incomes and the large differentials that obtain across countries. In this connection, Piketty assigns an important role to tax rules: before the 1980s, US and UK had quasi-confiscatory marginal tax rates on very high incomes; these rates were drastically reduced 1980, giving executives much greater incentive to seek large income increases. In turn, these enormous incomes have enhanced the political influence of their beneficiaries by increasing their ability to finance political parties, pressure groups and think tanks (ibid., p. 335).

However, when it comes to the rate of profit (the return on capital) Piketty appears to accept in full the scarcity-marginal product explanation (on this point, see also Aspromourgos, 2014, pp. 9-10). He puts forward arguments according to which the long-term tendency of the capital/output ratio to increase, though it diminishes the scarcity of capital and hence its marginal product, would do so only to a limited extent, and therefore would not cause a significant fall in the rate of return to capital *r*.[13] This approach in turn may lead to the question of where then do the high incomes of top managers come from? Are they subtracted from profits and dividends? Are they possible because of the low wages of other types of work, which enlarge the surplus that can be split between the owners of capital and management? The question however is not taken up in the book.

[13] He also argues, on the other hand, that a very low profit rate implies an overabundance of capital and a consequent curtailment of accumulation. We must remind the reader that what Piketty calls the capital/income ratio is in fact the wealth/income ratio.

A different view of distribution is available to us that does not rely on the concept of marginal productivity and that (on the basis of the capital critique) rejects the idea of monotonically decreasing factor demand functions. This is the classical tradition of Smith, Ricardo and Marx, which explains profits—and income distribution in general—in terms of class conflict, institutions and bargaining power. In this perspective, power relations, and the policies and institutions that shape those relations, are relevant not only to redistributive taxation, transfer payments and the welfare state, but they also determine wages and the rate of profits (i.e. the primary distribution of income).[14]

6. Alternative Theories of Growth and Their Implications

The other fundamental variable in Piketty's analysis is g, which, as we have seen, he contends must be equal to $n + p$. Accordingly, it cannot be expected to be very high in industrial countries in the near future. Demographic growth has ceased, and productivity growth, which was stimulated in the EU by the post-war catching-up process, has stalled.

There are however different views among economists about the determinants of growth. The one accepted by Piketty reflects the notion that economies always tend to operate at full capacity, so that in the long-run growth is determined by supply-side factors.

On the other hand, economists who question the spontaneous tendency of the economy to operate at potential output see not only aggregate income but also its rate of growth over time as determined by the autonomous components of aggregate demand. The two pillars of this approach are the role of aggregate demand in determining the degree of utilization of existing capacity in a given period, and the role, in turn, of capacity utilization in determining net investments, and hence the creation or destruction of productive capacity (see Cesaratto and Mongiovi, eds, 2015). This approach suggests a different interpretation of the golden age, which assigns a fundamental role to economic policies in determining growth. The high growth of the golden age certainly owes something to the catching-up process emphasized by Piketty, but in a more indirect way than is typically supposed by mainstream theory. The link is to be found in the ability of the catching-up countries to increase their exports thanks to technical improvements—and in the willingness of the US initially to finance their trade deficits, and later on to absorb their exports, and carry a persistent trade deficit. Note that what matters is the rate of growth of exports, and not the trade balance. The latter is an ex-post, partly endogenous result.[15] Other key factors contributing to the golden age

[14] Along similar lines of argument see Aspromourgos, 2014, pp 13-14, who correctly also emphasizes the role of unemployment in determining income distribution.

[15] An increase in the volume of exports would cause an increase in GDP and because of that an increase of imports, given the propensity to import. Even under the extreme assumption that, in addition, the *propensity* to import were to increase enough to re-establish a zero trade balance, this would not entirely balance out the increase in GDP caused by the increased volume of exports.

were the sustained growth in public expenditures, and the expansion of consumption demand in step with wage increases that matched or exceeded the growth in output per worker. Empirically, an indication that catching-up was not the only driving force behind the golden age is the fact that GDP growth in the US was higher in the golden age than at any time afterwards, even though the US was the most technically advanced economy and therefore was not engaged in a process of catch-up.

It might yet be argued that $n + p$ is the maximum rate of growth that can be achieved, and that in this sense it sets an upper limit, which is now far below what it was during the golden age. But this is not quite so. Most countries have large ‘reserves’ of unemployed and underemployed labour; labour force participation rates tend to rise in response to a tight labour market caused by rapid growth - this has happened already to a large extent in the US and in Northern Europe, but female participation rates, for example, could still increase considerably in many European countries; if on top of this we allow for migration flows between countries, there is no reason to think that the size of the labour force constitutes a binding constraint on growth. In addition, the rate of productivity growth is also to a considerable extent dependent on growth, and tends to be higher the higher is g, in accord with Kaldor-Verdoorn empirical law, and with the dependence of investments (which incorporate the technical advances) on the degree of utilization of existing capacity: higher investments entail that a larger share of the existing capital stock consists of new, most efficient equipment.

Hence g is not independent of economic policy; that is to say, in contrast to Piketty’s standpoint, it is not determined by exogenous demographic and technological factors. Of course there are considerations that make it clear that certain dynamics cannot easily be repeated: for example, an increase in the share of public expenditure and taxes in GDP much beyond the point it has reached already would probably encounter major political obstacles, given the political and cultural climate currently prevailing in most countries and the opposition of vested interests. Still, we should not overlook the possibility of financing public spending through monetary expansion, though conditions in individual countries and the world economy may constrain how far this can be pursued without triggering a problem in the external accounts or distributive conflicts and inflation.

7. Policy Proposals

Piketty’s policy proposals mainly involve taxing wealth, ideally in an internationally coordinated way. The alternative to such coordination for a single country willing to tax wealth more heavily would be controls on capital flows. These policy proposals can be considered radical in the present ideological and political climate, and run in a direction, which is both consistent with the analysis of the book and useful for stimulating political discussion.

But, also partly in line with the analysis of the book,[16] two areas for economic policy are missing from Piketty's proposals: policies affecting *primary* income distribution, and policies affecting growth. The former could be enhanced by a turn away from neoliberal labour market and wage policies currently implemented in most industrial countries and towards policies designed to enhance the bargaining power of workers, including the strengthening of labour unions. The second would involve the creation and strengthening of institutions and policies that encourage the growth of aggregate demand, including its public sector components. The reductions in inequality in Europe and North America achieved during the post-war 'golden age' were the result not merely of progressive taxation, but also of such policies.

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[16] As we have seen in section 5 above there appear to be in the book somewhat contradictory views about the role of power and institutions in affecting income distribution; it is recognized however that policy and institutions had a role in limiting the growth of wealth to income ratio in the post-war period up to the 1970s (section 3).

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