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Piazza Martiri della Libertà, 33 - 56127 Pisa, Italy
ph. +39 050 88.33.43
institute.economics@sssup.it

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Four engines of inequality

Maurizio Franzini °
Mario Pianta *

° Department of Economics and Law, University of Rome - La Sapienza, Italy
* Department of Economics, Society and Politics, University of Urbino, Italy

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Four engines of inequality

Maurizio Franzini[a] **and Mario Pianta**[b]

[a] Department of Economics and Law, Sapienza University of Rome, maurizio.franzini@uniroma1.it
[b] Department of Economics, Society and Politics, University of Urbino, mario.pianta@uniurb.it

Abstract

After much empirical documentation of patterns of inequality, we address in this paper the need for a convincing interpretation of the causes of inequality in advanced countries. We set the current debate in the context of the evolution of ideas on inequality, including the debate on Thomas Piketty's book. We argue that four 'engines of inequality'can be identified – the power of capital over labour, the rise of 'oligarchs capitalism', the individualisation of economic conditions, the retreat of politics – as key sources of today's inequalities. Each of these mechanisms is examined on the basis on concepts and data, with a detailed consideration of the results from the current literature and of the empirical evidence available. A full analysis of the dynamics of inequality, an interpretation of its mechanisms and a set of policy proposals to reverse it are developed in our book "Explaining inequality" (Franzini and Pianta, 2015).

Keywords: Inequality, Income distribution, Capital, Labour

JEL classification: D31, D33, E24, I38

1. The evolution of ideas on inequality[1]

A large evidence is now available on the general rise - since 1980 - of inequalities in income and wealth in advanced countries (Piketty, 2013; Atkinson and Bouguignon, 2014; Salverda et al., 2014; Franzini and Pianta, 2015). Besides the documentation of empirical patterns, however, a convincing explanation of the causes of such a rise is not yet available. In this paper we search for a deeper interpretation of the causes of rising inequalities in advanced countries. We consider the economic, social and political processes that have produced such growing disparities and we suggest that four mechanisms can explain such changes. They include: the power of capital over labour, the rise of oligarchs capitalism, the individualisation of economic conditions and the retreat of politics. Each of these mechanisms is examined on the basis on concepts and data, with a detailed consideration of the results from the current literature and of the empirical evidence available. A full analysis of the dynamics of inequality and a set of policy proposals to reverse it are developed in our book "Explaining inequality" (Franzini and Pianta, 2015).

Economic inequality is a changing phenomenon; its forces evolve over time and even a similar level of disparities may be the results of different mechanisms and patterns of distribution. Economic ideas on inequality have evolved accordingly.

For Classical economists inequality was defined by the class structure of industrial capitalism and by the distribution of income between capital and labour. The relationships between patterns of distribution, economic growth and social reproduction were a key concern in their analysis industrialisation.

Marx emphasised the contradiction between industrial capitalism's potential for progress and its outcome - capital accumulation for the capitalist class, and commodified labour, limited wages and hard social conditions for workers and the dispossessed. Increasing inequalities – relative to the poorer but more equal pre-industrial societies - were the result of the very nature of capitalist accumulation.

Problems of distribution and inequalities "disappeared" in Neoclassical approaches behind widely accepted – and surprisingly long-living - assumptions. At the macroeconomic level, the compensation of factors of production was assumed to be equal to their marginal productivity; at the individual level, incomes were simply the result of choices on work, investment and consumption that resulted from individual utilities. Freedom of choice and market efficiency could justify any (unequal) distributional outcome, with no consequence for economic growth, and no room for the principles of social justice, human rights, nor for redistributive policies. The Great Depression of the 1930s proved how unrealistic such assumptions were and how disastrous their policy implications.

In the post-war period, the link between income distribution and growth returned at the centre of Keynesian approaches, with two distinct mechanisms; on the demand side, wages were seen as a major source of aggregate demand; on the supply side, accumulation – financed by profits and savings – was needed to expand productive capacities. The main concern of Kaldorian models (Kaldor, 1956) and post-Keynesian perspectives (Robinson, 1960) was to identify the distributive patterns that were consistent with sustained growth, recognising a major role for government action

[1] This paper draws from years of research, presentations at workshops and public discussion on inequality. Key ideas are sketched in Franzini and Pianta (2009,2011) and in our studies of inequality and economic crisis in Italy (Franzini, 2010, 2013; Pianta, 2012). The problems of high incomes and wealth are addressed in Franzini et al. (2014), the policy alternatives are discussed in Marcon and Pianta (2013). We thank Francesco Bogliacino, Valeria Cirillo, Elena Granaglia, Dario Guarascio, Matteo Lucchese, Michele Raitano for discussion on these issues

in supporting both accumulation and demand – through public expenditure and redistribution that could support the lowest incomes and reduce inequality. Moreover, insights from welfare economics informed the normative models for economic policy aiming at redistribution, pointing out the trade-offs between efficiency and equity in static and dynamic contexts.
The empirical regularities of such processes were pointed out by Kuznets (1965) who suggested the inverted-U relationship between levels of inequality and countries' per capita income; industrialization and growth would first increase inequalities – as a result of the structural change from low to high productivity sectors - which would then decline as a result of the diffusion of industry, redistribution and more balanced growth.
Indeed, Europe and the US experienced a reduction in inequalities from the 1950s to the 1970s as a result of economic growth, social change and public policies for redistribution and welfare. One of the side effects – as repeatedly argued by Atkinson (2015) - was that for several decades inequality became a rarely explored field of economic research, with few specialized studies.
A new attention has emerged since the 1990s, following the new rise in inequality that had started in the 1980s. Such studies have moved from the functional distribution of income between social classes to inequalities among individuals. The argument was that class divisions had become less clear cut, and gender, ethnicity, education and professional qualification had become major factors in explaining the personal distribution of income. A large number of detailed studies have addressed these issues documenting more complex patterns of inequality among individuals and households (Atkinson and Bourguignon, 2000; 2014; Salverda et al. 2014). This approach, however, largely missed the continuing importance of capital-labour relationships and new key role of top incomes combining rents, profits and unprecedented high compensations for top managers (Atkinson and Piketty, 2007, Atkinson, Piketty and Saez, 2011). What we are facing today – after the temporary reduction of disparities between 1950 and and 1980 - is a return to the levels of inequalities of a century ago - Kuznets's curve has indeed been reversed.
In parallel, the rapid accumulation of financial and real estate assets by the richest individuals has attracted attention to inequalities in wealth, and an emerging stream of research is now exploring wealth disparities and their link to inequalities in incomes (Piketty, 2013; Piketty and Zucman, 2014; Maestri et al. 2014).
Building on the evidence on the growing shares of profits and financial rents and on the increasing concentration of income and wealth, Piketty (2013) has argued that the roots of growing inequality are in returns to capital that are greater than the growth rate of the economy, leading to an increasing capital/income ratio – two fundamental mechanisms of capitalism.
Other attempts to explain growth in inequality in advanced countries have focused on disparities within wages in the context of globalisation and technological change. A large literature within the economic mainstream has argued that the rising wages of highly skilled white collars reflected the greater labour productivity of workers capable to use the new Information and Communication Technologies and that wage inequalities were the result of skill biased technical change (Acemoglu, 2002). These studies ignored that advanced countries were not experiencing a generalised "upskilling" of jobs, from blue to white collar employment, but rather a polarisation was taking place with more jobs for managers and professionals and for the lowest skills – manual workers and ancillary jobs. Losses in jobs and wages were concentrated among office clerks (the low skilled white collars) and skilled factory workers (the most qualified blue collar employees) (Nascia and Pianta, 2009; Cirillo et al., 2014). While technological change does have an impact on inequality, it is arguably more complex that the skill bias view, as recently acknowledged also by mainstream views (Acemoglu and Autor, 2010). Moreover, these effects are combined with increasing foreign trade and investment, that have a parallel, often overlapping impact on changes in employment, skills and wages in advanced economies (Feenstra and Hanson, 2003).
Higher wage inequality has also been explained with developments in labour markets, where the changing balance of power between capital and labour has led to the rapid rise of temporary and precarious jobs, the fall of unionisation and of trade union influence, a greater fragmentation of

labour, including the effects of education, part-time contracts, greater women's participation, migrations, etc. (ILO, 2015, OECD, 2015; Checchi and Garcia-Penalosa, 2008; Salverda and Checchi, 2014). Such developments have been summarized as labour's "defeat" in income distribution (Glyn, 2006, 2009).

Today's inequality in advanced countries is therefore the result of a set of different and complex mechanisms. While extensive empirical evidence has been provided (Atkinson and Bourguignon, 2000, 2014; Salverda et al., 2009, 2014), a convincing explanation of the 'engines of inequality' is still lacking. It has to combine the importance of the functional distribution of income between capital and labour, the growing role of finance in creating disparities, the rise of top incomes, and the new complexity of the personal and household distribution, where individuals' and families' incomes are shaped by education, skills, gender and ethnicity, as well as class. Moreover, the growing importance of the expansion of wealth – in finance and and real estate – has introduced a major change in the functioning of advanced economies and in their patterns of distribution.

Inequality is important also because is reproduced across generations. For long, studies on advanced countries have assumed that improved education and the end of rigid class divides offered higher equality of opportunities and greater social mobility. More recent studies however have disputed such views with evidence that inequality persists from one generation to the next, and that (apparently) more equal opportunities do not reduce unequal outcomes in income distribution among individuals (OECD, 2008,2011; Franzini, Raitano, 2015).

At the same time, philosophical and economic perspectives have addressed the issues of justice, ethics, equality of opportunities, inter-generational inequality. Liberal theories of justice stated the primacy of individuals' freedom of choice and explored the possibilities of reducing inequality without limiting liberty. Rawls (1971) argued that in a society made of rational, self-interested individuals, a majority would accept a redistribution that improves the position of the worse off in a society. An emphasis on equality of opportunities – as opposed to equality of outcomes – has characterised recent conceptualisations, as in Roemer (1998). Moving beyond such models, Amartya Sen has pointed out the complexity of inequality, rooted in societies' historical contexts, in the capabilities available to people, families and social groups in the pursuit of their objectives, in the concrete opportunities individuals have to make decisions about their lives (Sen, 1992, 2009).

From his work we derive that the equality of capabilities to function as human beings appears as the most convincing ethical foundation for the desirability of equality. Typically, life protection and health, access to education and knowledge, freedom of choice appear as human rights that should be granted equally to all. The UN Human Development Index is based on such a conceptualisation and ranks countries on the basis of an average of their life expectancy, educational levels and GDP per capita; additional indicators have been developed in this perspective, highlighting the human right dimensions of global inequalities (UNDP 2014).

These approaches have moved together with a broader recognition that inequality cannot be confined to incomes and economic factors, and that access to education and health, as well as social conditions play a key role in shaping (unequal) life prospects for individuals. While incomes appear to be highly related to several of these social conditions, a wider conceptualisation of inequality is needed. Therborn (2013) has argued that there are three (interconnected) types of inequality: vital inequality (shown by life expectancy and health conditions), existential inequality (documented by differences across classes, status, gender, ethnicity) and resource inequality (the one economists are mostly concerned with). He also identified the mechanisms of 'distanciation', exclusion, hierchisation and exploitation that shape inequalities of all types, organising what really is a 'socio-cultural order', not just a diversity of income and wealth (ibid. pp.53,63,1).

In fact, a lot can be learned from studies on social and health conditions. Therborn reports impressive data on the persistence of vital inequalities in life expectancy: "Between the thirty-three boroughs of London the range of male life expectancy has widened from 5.4 years in 1999-2001 to 9.2 years in 2006-2008. If you travel east on the underground Jubilee line, life expectancy of the

residents is decreasing by half a year at every stop" (Therborn, 2013, p.82, quoting the London Health Observatory, 2011).
Wilkinson and Pickett (2009) have shown that higher inequalities in advanced countries are associated to a full range of social problems – from suicides to drug use, from prison population to obesity – contributing to shortening the life expectancy of the poor. Moreover, they also found preliminary evidence that living in contexts of high inequality is bad even for the rich, as even oligarchs can hardly shield themselves from a number of pervasive social ills in the society where they live. The need for greater interdisciplinarity, with collaboration between economists, sociologists, political scientists, statisticians, epidemiologists and philosophers is by now widely accepted, but not yet practiced enough.

The context in which inequality can be investigated has also evolved, moving from national to international perspectives. World income inequalities between countries and regions have been investigated in their evolution over time and space; approaches have first focused on differences among countries (considering their average per capita income), combining them with inequalities among individuals within a country. Greater efforts are now made to estimate global inequality among all the world population, regardless of countries (Milanovic, 2005, 2011, 2012; Lakner and Milanovic, 2013; Cornia, 2004). When the relevance of the incomes of the richest 1% is considered, the evidence shows that in the last decades inequality has increased also among the world population as a whole, in spite of the 'equalising effect' of higher average income in (highly unequal) emerging countries such as China and India (Anand and Segal, 2014). Key determinants of the changing world income distribution have been identified in the different phases of countries' development, in the global flows of knowledge, trade and finance, and in countries' positions in the core or periphery of the world system (Arrighi, 1991). These studies contributed to the debate on the distribution of the benefits of globalisation and questioned the economic rationale, the social sustainability and the political acceptability of extremely wide income inequalities at the global level.

2. The dynamics of capital

Inequality is first of all the result of the distribution of income, that in turn is fundamentally affected by the balance of power between capital and labour and by the dynamics of profits and wages. This mechanism shapes inequalities among social classes and groups receiving different types of income. Since 1980, most advanced countries have experienced a significant reduction of the labour share in GDP, of the order of ten percentage points. What are the forces leading to such a substantial distributional shift?
At first sight, since the 1980s a wide range of developments have gone in the direction of expanding the power of capital – the first engine of inequality. First, the liberalisation of capital movements has led to a surge of capital flows - for foreign direct investment and for the acquisition of financial assets - driven by a search for higher profits. Second, the growth of financial activities – the most profitable, mobile and volatile form of capital – has dominated investment patterns. In the US the ratio of aggregate profits of the financial sector to profits of non-financial activities has increased from 20% in the 1970s to 50% after 2000 (Glyn, 2006, ch.3). The expansion of finance has led to the creation of increasingly complex markets for credit, stocks, bonds, real estate, currencies, futures, commodities, derivatives, etc., driven by a search for short-term speculative gains and leading to major bubbles - and to the financial collapse of 2008. Third, international production systems have emerged as a result of the use of new technologies – in information and communication and other fields – and of the freedom of movement of capital; this has greatly

reduced the power – and the employment - of labour in advanced countries, with a corresponding fall of wages. We need to understand in which specific ways these developments affect inequality.

Piketty's capital and beyond

A useful starting point in this investigation are the mechanisms identified by Piketty (2013) as 'fundamental laws of capitalism'. In his view the rise of the capital share (α = profits/income) is the necessary result of the high rate of return to capital (r) and of the rise of the capital/income ratio (β) ($\alpha = r\cdot\beta$, his 'first law of capitalism'). In turn, the growing capital/income ratio goes hand in hand with a stable propensity to save (s) and the slow down in income growth (g), due to stagnation in population and slow rise of productivity ($\beta = s/g$, his 'second law of capitalism'). Let us address these relationships one by one.

Returns to capital greater than the rate of growth ($r > g$). In the conceptual framework of Piketty, a key driver of the rise in inequality is the fact that in recent decades the rate of return to capital (r = profits/capital)[2] has been higher than the rate of growth of the economy (g). His current estimate is that the rate of return on total capital is close to 5%, while GDP growth rates in advanced countries have rarely gone beyond 2%. Taking a longer view and considering Britain, Piketty estimates that the average rate of return to capital (net of the effort needed to manage investment) has oscillated between 4 and 5% from 1770 to 1930, moving up close to 7% in 1940 and then falling to just above 3% in 1980 and 1990, before a new rise above 4%. In France he finds oscillations between 4 and 6%, with 7% peaks in 1920 and 1950 (ibid., p.318, graphs 6.3, 6.4).[3] The gap with GDP growth is significant, a 5% growth rate of advanced economies has been achieved only in exceptional cases.
This $r > g$ gap has two implications. First, if at least some of the returns to capital are invested to expand it, the accumulation of capital proceeds at a faster pace than economic growth, resulting in growing capital/income ratios. Second, the amount of profits paid to capital has to increase; when GDP increases at a lower pace than the rate of profit, a growing share of income has to go to capital, reducing the wage share. Higher inequalities are therefore the result of the importance of capital and the slowdown of growth.

The rise in the capital/income ratio. The value of capital expressed in years of national income is now between 5 and 6 times in the UK and France, 4.5 times in the United States and 4 times in Germany. France and UK are approaching the levels typical of early XX century – in 1870-1910 the level was close to 7; the two world wars brought it down to less than 3 in 1950, with a continuous rise since then. In the US the trend has been more stable, with peaks of 5 in 1910 and 1930, a fall to less than 4 in 1950 and a constant rise since then (ibid., p.234-239). Piketty emphasises the drive towards a greater role of capital and concludes that "there is no natural force that will necessarily reduce the importance of capital and of the incomes resulting from the ownership of capital in the

[2] The rate of return on capital "measures the yield on capital over the course of a year regardless of its legal form (profits, rents, dividends, interest, royalties, capital gains, etc.) expressed as a percentage of the value of capital invested", it is therefore a broader concept than the "rate of profit" and much broader than "the rate of interest", while incorporating both. (Piketty 2013, p.93).

[3] Rough estimates at the world level suggest a stability of the returns to capital between 4 and 6%, while in the period of most rapid growth (1950-2012) the world economy expanded by less than 4% per year. However, when we consider the returns to capital net of taxes, estimates suggest that they fell to 1% in the 1913-1950 period, returning to just above 3% in 1959-2012 – in both cases the growth rate of the economy has been higher that returns to capital (ibid., pp.562-565, graphs 10.9, 10.10). If we consider the rates of return net of taxes for advanced countries, the $r > g$ gap is likely to be reduced.

course of history" (ibid., p.370). In other words - short of major shocks or world wars - the growth in the share of income going to capital, and the resulting inequality, is unlikely to be reversed.
There are, however, three critical issues in the analysis of Piketty. First, the heterogeneity of capital and the diversity between productive capital and financial wealth. Second, the specific nature of financial accumulation and the cyclical nature of capitalist growth. Third, the ways we understand the process of economic growth. We consider them in turn.

Productive capital vs. financial and real estate wealth. A controversial question in the analysis of Piketty is his definition of capital: "capital is defined as the sum total of nonhuman assets that can be owned and exchanged on some market. Capital includes all forms of real property (including residential real estate) as well as financial and professional capital (plants, infrastructure, machinery, patents and so on) used by firms and government agencies" (ibid., p.82).
This definition does not distinguish between productive capital and non-productive wealth. In fact he also writes: "I use the word capital and wealth interchangeably as if they were perfectly synonymous" (ibid. p.84). He is aware that the composition of capital has changed over time, from the dominance of agricultural land in the past, to real estate, business and financial assets today. And he documents that different types of capital have different returns - the average long-run rate of return on stocks is 7-8% in many countries, investment in real estate and bonds yield a 3-4% return, while the real rate of interest on public debt is usually much lower (ibid.,p.94) – but he focuses on the resulting aggregate rate of return on capital, that is about 5%.
From the point of view of income distribution this choice can be appropriate in order to identify the returns going to all forms of capital. But when we look at production, increased output is in fact the result of increased productive capital alone. An increase in the value of financial assets – and of a given real estate - does not help expand output; it does change the distribution of income as a result of high returns on capital – that can be transferred from industrial profits to financial and real estate rents - or of speculative bubbles that inflate asset prices. Therefore, if the expansion of capital is due growing values of non-productive assets, it becomes difficult to expect rising output with a rising productivity of capital, and rising rates of profits.[4]
A deeper understanding of the relationships between productive and financial capital in the process of accumulation is therefore needed, before addressing the roots of the current slowdown in growth.[5]

[4] This issue has been raised also by Solow (2014), Real-World Economics Review (2014), Rognlie, (2015), Weil (2015), Wade (2014), Galbraith (2014). According to the latter, "Piketty wants to provide a theory relevant to growth, which requires physical capital as its input. And yet he deploys an empirical measure that is unrelated to productive physical capital and whose dollar value depends, in part, on the return on capital" (ibid.). Galbraith - in the footsteps of Marx - also argues that Piketty forgets that capital is a social relation: "the essence of capital was neither physical nor financial. It was the power that capital gave to capitalists, namely the authority to make decisions and to extract surplus from the worker" (ibid.; in the same vein see also Lordon, 2015).
[5] A more specific controversy has concerned Piketty's wealth data. In 2014 the Financial Times and the Wall Street Journal published articles arguing that his data on rising wealth inequality in the US and Europe were distorted by problems of estimation at the top of the distribution. The method used by Piketty, however, makes appropriate adjustments and his findings have resisted such criticism. The main problem with wealth data, in particular for the very rich, is due to tax heavens and further studies have explored this issue (Zucman, 2014). However, a reasonable assumption is that tax heavens induce an underestimation of wealth concentration; this is particularly true for Europe as there is substantial evidence that a large part of the assets hosted in tax heavens come from the rich of European countries.

The dynamics of finance

In order to put in perspective the findings of Piketty we can refer to the analysis of accumulation as a succession of cycles proposed by Giovanni Arrighi (1984) – drawing from Marx and Braudel (1979). In this view, the first part of the cycle of accumulation is characterised by a material expansion, rooted in technological advances and high demand for new products and industries, with growing trade and production as money is turned into productive capital, embodied in a particular set of means of production. The material expansion at first produces large monopolistic profits; then more capital is invested in the same activities without a parallel increase in the opportunities for profits, resulting in greater competition and a lowering profit rate. This leads to a 'signal' crisis – a recession associated to inadequate profits - that may destroy the least productive capital. After that, capitalists decide to hold a larger share of capital in the form of liquid assets, creating the conditions for a period of financial expansion – the second part of the cycle - in which capital searches for profits without going through material investment. The supply of money capital soars, alongside the demand for liquidity and debt, due also to the impact of the crisis on public and private finances. The financial expansion produces a period of renewed growth, but capital accumulation cannot be sustained indefinitely by financial investment and speculative bubbles in stock markets and real estate prices. When bubbles burst, the accumulated debt of firms and governments become unsustainable, banks fail and the economic crash may turn into a protracted depression - the 'terminal crisis' of the accumulation cycle. After the depression, new economic and political conditions can lead to the emergence of a new cycle of growth.

For Arrighi capitalism has developed since its start through a sequence of cycles of accumulation, that are paralleled by a succession of hegemonic cycles in the sphere of political relations among states; each hegemony represents the centre of the specific world-system in which capitalism is organized (Braudel, 1979, Wallerstein, 1974). This interpretation suggests that in the current period of US hegemony, the phase of material expansion started with the second world war and reached its 'signal crisis' in the 1970s, followed by the phase of financial expansion started in 1980, that has led to the crisis of 2008 and the current stagnation. Building on this perspective, back in 1999 - at the height of the American expansion powered by the "new economy" and finance - Arrighi and Silver could argue that "The global financial expansion of the last twenty years or so (…) is the clearest sign that we are in the midst of a hegemonic crisis. As such, the expansion can be expected to be a temporary phenomenon that will end more or less catastrophically, depending on how the crisis is handled by the declining hegemon" (Arrighi and Silver, 1999, p.272; see also Pianta, 2012, p.12).

These insights on the cycles of accumulation can integrate the analysis of Piketty on the growth of capital/income ratio; the peaks of such ratio – 1910-1930 and 2010 – are indeed the peaks of the phases of financial expansion where the value of capital is inflated by bubbles; conversely, the decades from 1950 to 1980 – with the lowest capital/income ratios – are the period of the fastest growth of material production and income.

Piketty himself shows the importance of finance in today's' capital when he shows that total financial assets and liabilities have grown much faster than net wealth. In most countries the sum of financial assets and liabilities was equal to four-five years of national income in the 1970s; in 2010 is between 10 and 15 years in the US, France, Germany and Japan, reaching 20 years in the UK (Piketty, 2013, p.305). This expansion of financial assets and debts come from the escalating complexity of financial operations, cross-ownership deals, bank lending, etc.

A more specific measure of the growing role of finance is the rise in the ratio between market and book value of corporations; at the end of the 1970s it ranged everywhere from 30 to 50%; in 2010 it is close to 120% in the UK, 100% in the US, 80% in France - only Germany and Japan, with different ownership and financial systems, have stayed around 50% in 2010; at the peak of the 1999 financial bubble an extreme value of 150% is recorded for the UK (ibid., p.297). This rise of finance has clearly marked the current expansion of capital values, driven also by the emphasis on ‘shareholder value’ in the management of firms, an approach that has led corporations to give priority to rising stock prices - using stock buybacks as a key tool -, distributing dividends to shareholders and super-bonuses to top managers, while at the same time cutting back on material and R&D investment that provide the basis for sustained growth (Lazonick, 2015). Other insights on the dynamics of finance (Chesnais, 2004; Lapavitsas, 2013) could enrich the analysis of the current phase of finance-driven accumulation.

The very nature of such financial expansion is unlikely to be indefinitely sustainable. Rather than an indefinite rise of the importance of capital – with expanding finance and growing capital/income ratios and capital shares in national income – we could expect developments and crises that will affect - and eventually limit – the role of finance. Piketty is right, however, to emphasise that the distribution of income between profits and wages is in the end the outcome of the balance of power between capital and labour: “the price of capital (…) is always in part a social and political construction: it reflects the idea of ownership prevailing in society and depends on multiple policies and institutions regulating relationships between the different social groups concerned” (Piketty, 2013, p.296).

In fact, the years of low capital/income ratios and fast growth - from 1950 to 1980 – were characterised, especially in Europe, by clear political constraints on the accumulation of capital and on returns from investment, including strict control over international capital movements, tight regulation on finance, extensive public ownership of large firms in key industries, rent control policies, planning controls on real estate, high taxation on profits, rents and top incomes. These policies limited the returns to capital and the share of profits in national income; most of them were cancelled or drastically reduced in the neoliberal era starting in the 1980s. Since then the greater power of capital has made sure that it obtains high returns from the variety of possible investments – from global production to speculative finance – even when actual production capacities are not developed. The power of capital will have to be confronted, and many of the policies limiting returns to capital will have to be reintroduced if we want to reverse the current rise in inequality.

The dynamics of growth

We have already seen that in Piketty’s explanation of inequality, a key role is played by the fact that the rate of return to capital (r) is higher than the rate of growth of the economy (g). But what are the sources of the economy’s growth? This is a crucial – and highly debated – issue in economics; Piketty builds here on mainstream growth theories[6] and investigates the growth trajectories of advanced countries.

In empirical terms, the growth rate of national income can be decomposed as the sum of the increase in population and in per capita income (as aggregate income equals aggregate product, the latter can be interpreted as a measure of average productivity). In all advanced countries in the 1970-2010 period growth rates have declined compared to 1950-1970; on average, they fell to 2.8% per year in the US (resulting from a 1% population increase and a 1.8% per capita income growth), 2.5% in Japan, 2.2% in France and the UK, 2% in Germany, 1.9% in Italy; in Europe and Japan these performances resulted from a lower population growth of 0.3 to 0.5%, and from per capita income growth ranging from 2% in Japan to 1.6% in Italy (Piketty, 2013, p.275, table 5.1). The slowdown in the growth of product per capita has been significant – in the period 1950-1970 its average annual growth was above 4% in Europe and 2.3% in the US (ibid. p.163, graph 2.3).

At the same time, Piketty’s estimates for the adjusted rates of return to capital for the UK and France range from 6-7% in 1950 to 4% in 2010 – much higher values that the rates of growth of national income (ibid. p.318, graphs 6.3,6.4). According to this evidence, a larger amount of capital

[6] The classic growth model is that of Solow (1956); the historical perspective and data on long term growth are drawn from Maddison (2007); on the recent debate on growth slowdown see Gordon (2014).

has been able to command a high rate of return – greater than the rate of growth of the economy – even if with some decline in more recent years, also as a result of the crisis. The result of such dynamics has been the systematic growth in the share of capital in national income documented in ILO (2015) and Franzini and Pianta (2015).[7]

In his outlook for the future at the world level Piketty expects that the growth of world output will be on average about 1,5% per year, while the saving rate will be about 10%. As savings and investment have to be equal, and assuming that the pace of growth of capital and income will be the same, this implies – on the basis of $\beta = s/g$ - that the capital/output ratio will go up to almost seven, (10/1.5) a record level for the world as a whole. In other words, the prospect for Piketty is a generalisation of the importance of capital, with growing capital/output ratios, shares of profit in income and inequality in the world economy (ibid. p.308-309, graph.5.8).

There are however a few objections that can be raised to such a view. First, as seen above – following Marx, Schumpeter and Arrighi - the accumulation of capital proceeds in cycles and the current financial expansion is unlikely to continue indefinitely and extend at the world level; in fact accumulation has always relied on strong asymmetries between centre and periphery at the world level. Therefore, the general rise in the value of capital may soon return to its cyclical pattern.

Second, – following Keynes - demand matters. Accumulation of capital and income growth require a demand that is able to absorb production. At the world level demand is the result of the distribution of income between profits – generally leading to savings and investment - and wages, turned into consumption. If total wages fall, not even the opulent consumption of the richest 10% with rising incomes will be adequate to assure the necessary demand. With lower total consumption, the savings of the world's richest will increase, but where will they be invested? It is unlikely that they will be turned into productive investment when demand is stagnant. Financial assets may indeed multiply indefinitely, but then it would be increasingly difficult to make sure that their returns are high when the world productive base stagnates (this points out again the problem in Piketty's identification between capital and wealth).

Third, - following growth theories – we need to understand how the production process that generates income, profit and wages is conceptualised. Piketty relies on the neoclassical growth model where capital and labour are combined – originally on the basis of fixed coefficients - in order to obtain output, while the technology is exogenous. Robert Solow – a key founder of this approach – argued that "as production becomes more and more capital-intensive, it gets harder and harder to find profitable uses for additional capital, or easy ways to substitute capital for labour. Whether the capital share falls or rises depends on whether the rate of return has to fall proportionally more or less than the capital/income rises" (Solow, 2014).

If capital becomes more abundant, in other words, are we sure that capital can continue to replace labour – and reduce therefore employment and wages – while assuring the same output growth? In fact, neoclassical views of production factors have traditionally argued that the returns to capital or labour fall when the production factor is more abundant. In this case, an increase in the capital/income ratio would lead to a fall in the rate of profit and a slowdown in capital accumulation. Piketty's way out of this problem is the assumption that the same output increase can be achieved with an increase in the amount of capital that is higher than the increase of the amount of labour - that is the elasticity of substitution between capital and labour is greater than 1 (Piketty 2015, p. 81).

This type of neoclassical model assumes that the returns obtained by capital and labour reflect their marginal productivities; a greater amount of more productive capital can thus gain higher returns and a larger share of total income. There are several questions that could be raised here. First, there

[7] In order to obtain the share of capital in national income we can multiply the rate of return on capital by the capital-income ratio. With a rate of return around 5% and a capital/income ratio equal to 6, the capital share is 30%.

are serious uncertainties on the possibility to measure capital and on the identification between capital and wealth made by Piketty (see above). Second, most of recorded growth in advanced countries is not due to increases in the quantity of capital and labour, but to changes in technology, that is not exogenous but is developed by deliberate choices, requiring specific qualities of capital and labour in combinations that cannot be varied at will (you cannot have an automated factory run by workers with no ICT skills). Third, when production is characterised by economies of scale – increases in output are greater that increases in inputs – the rate of profit (r) and the growth rate of incomes (g) can move hand in hand, but the capital/output ratio is likely to fall, not rise.

In a follow-up article (Piketty, 2015) some of these points are addressed. First, greater attention is devoted to the conditions that are required for the relations discussed above to emerge. A rate of return of capital (r) greater than the rate of growth of the economy (g) leads to higher disparities in particular when – as pointed out by Solow (2014), "the income and wealth of the rich will grow faster than the typical income from work". This is a reasonable assumption as the return on capital tends to be larger for owners of larger amounts of capital, introducing an additional mechanism of concentration of income and wealth[8].

Second, Piketty acknowledges that not all capital and production processes are the same; he acknowledges that "large upward or downward movements of real estate prices play an important role in the evolution of aggregate capital values during recent decades" and suggests that "the right model to think about rising capital-income ratios and capital shares in recent decades is a multi-sector model of capital accumulation, with substantial movements in relative prices, and with important variations in bargaining power over time" (Piketty, 2015, p.52). Such research direction may highlight the different dynamics of production and distribution within the economy, addressing also the specificity of productive and non-productive capital.

Third, more attention is devoted to the role of labour income; he argues that $r > g$ cannot be considered as "a useful tool for the discussion of rising inequality of labor income: other mechanisms and policies are much more relevant here, e.g. supply and demand of skills and education" (ibid. p.48).

Without entering into a detailed discussion, we can conclude that the key relationships identified by Piketty between the capital/income ratio, the rate of profit, the rate of growth and resulting inequality are important points of reference identifying the dynamics of capitalism, but have to be qualified with more specific theories, more realistic assumptions, and empirical investigations focusing on specific historical contexts. In the next section we propose a conceptual framework that can accommodate the dynamics of capital and the growth of income discussed above with the four engines of inequality we have identified.

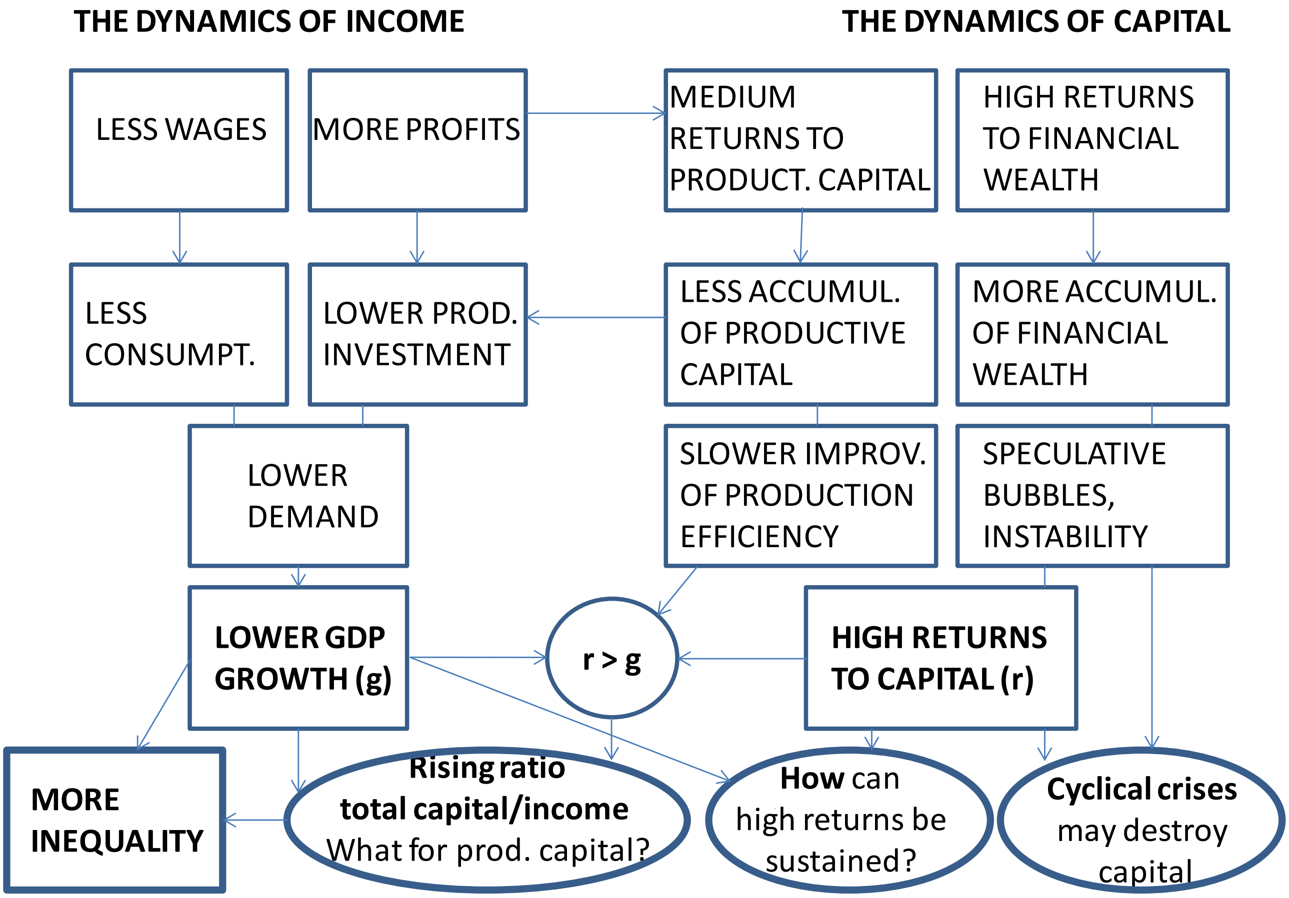
3. Capital, income and the engines of inequality

The arguments of the previous section can be summarised in Figure 4.1 where the parallel dynamics of capital and income are presented. The aim is to identify the key mechanisms and the causal links that explain the 'stylized facts' on capital, growth and inequality. Building on our discussion of Piketty's work in the previous section, we propose to introduce the distinction between productive capital – the assets that are used for producing goods and services, including buildings, machinery and intangible capital - and financial wealth – assets granting a monetary return, whose nature of rent-seeking investment prevails over the contribution they offer to the production of new output. We are well aware that this a problematic distinction, at the centre of extensive debates in economic

[8] Piketty writes that "r>g does not in itself imply anything about wealth inequality"; "for a given structure of shocks, the long run magnitude of wealth inequality will tend to be magnified if the gap r-g is higher" (Piketty, 2015, p.73,75).

literature; what we want to introduce here is simply a conceptual distinction in the aggregate definition of capital as wealth by Piketty (2013) between two components with a different dynamics of accumulation. First, capital used for production activities directly contributes to GDP growth and generates profits when production is successful; its accumulation comes from the flow of reinvested profits and its real effects may include an expansion of capacity and an improvement of productivity and efficiency. Second, financial assets generate rents that are drawn from national income, and subtracted from the earnings of labour and productive capital; the accumulation of financial wealth mainly proceeds from the inflation of asset values and speculative bubbles; this may have an indirect impact on GDP dynamics through wealth effects, but it introduces a greater instability and a risk of financial crisis. We do not attempt here an empirical definition of productive capital and financial wealth; several components – for instance corporate stock and bonds – combine both characteristics. A particularly complex issue is that of real estate assets; homes can be used by owners, generating imputed income; can be rented, generating economic activities; can be bought and sold in order to obtain capital gains; can be used as collateral for financial transactions. Similar complexities appear in the case of offices and plants that can be used for carrying out production, but also for finance-oriented operations.

Figure 1. The dynamics of income and the dynamics of productive and financial capital



The conceptual distinction between productive capital and financial wealth makes it possible to understand the divergent dynamics pointed out in the previous section between the moderate returns to productive capital and the very high returns to financial wealth. In aggregate, they result in historically high returns to capital (r), that are greater than the rate of growth of GDP (g). The latter, however, is directly affected by the slower accumulation of productive capital that results in lower investment, demand and growth; moreover, this lack of productive capital slows down the improvements in productivity that are needed to sustain growth.

What are the implications of this framework on the mechanisms identified by Piketty? First, the rise in the capital/income ratio may be heavily affected by the expansion of financial wealth alone; the productive capital/income ratio is significantly lower and could be more stable. Second, how can such high returns to capital be sustained? Profits on productive capital may slow down with slower accumulation and growth. High rents on financial wealth are sustained by inflating asset values, and may impose an excessive burden on profits and wages as GDP growth slows down; all this may increase instability. Third, the inflating value of financial (and real estate) assets may at some point lead to a burst of the speculative bubble – as happened in 2008. This may open up a downswing of the economic cycle where some of the previously inflated asset values are lost, reducing – as in the Great Depression of the 1930s, the capital/income ratio.

We can now address the dynamics of income and growth considering the left side of Figure 4.1. The rise in the capital share is the base for the high returns to productive capital and financial wealth. A falling wage share and a higher income inequality, however, result in lower consumption and lower multiplying effects of demand, contributing to a slowdown of growth. The same effect emerges when investment is mainly directed towards financial rather than productive activities. A lower growth rate is indeed facing higher returns to capital (r > g). As profits and rents have to be paid out of national income – as we already pointed out – in the longer term a lower growth could make the same high returns unsustainable. The only possibility with a stagnant GDP is an ever increasing capital share and a parallel fall of wages, resulting in ever increasing inequality. Until some drastic social and political development may put an end to such capitalist dynamics.

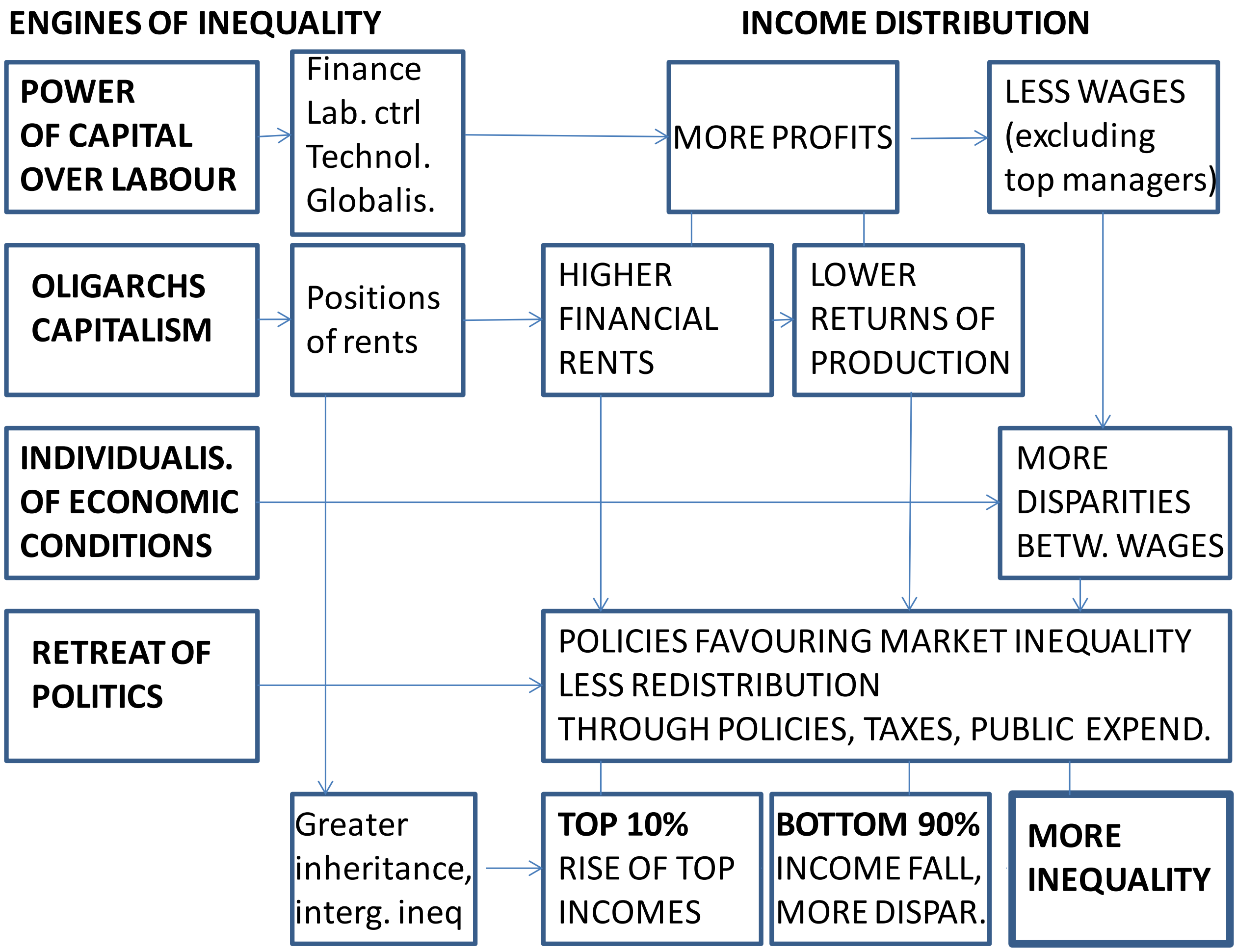
Summing up, this framework allows to identify the implications for inequality of the broader dynamics of capital and income. Inequality increases when profits rise more than wages; when returns to capital – inflated by financial assets - are higher than growth rates; when a financial expansion leads to high rents that put pressure on the functional distribution of income, reducing the wage share. All these developments – from the expansion of finance to growing inequality – can hardly be expected to follow a linear trajectory; historical experience has shown that capital accumulation follows a cyclical pattern, that its contradictions lead to cyclical crises and that changes in social and political relations can affect the future of inequality - and capitalism.

The impact of the engines of inequality

Building on this framework, we can move to investigate the specific mechanisms generating inequality, identified in Figure 4.2. Again, here we are mainly concerned with a conceptual definition that has to come before empirical investigations of the particular impact of each engine of inequality. The four engines of inequality operate at different levels and closely interact with one another. However, Figure 4.2 provides a simplified summary of their inegalitarian effects on different economic and policy processes.

The first engine of inequality – the power of capital over labour – has a direct impact on the functional distribution of income, leading to higher profits and lower wages (for the sake of logical coherence, here we exclude from wages the remuneration of top managers). There are however several specific processes through which this impact takes place. The rise of finance is a major one, as we have seen in the previous section. The ability of capital to control labour and decide its use – changing quantity and quality of employment, controlling work practices, increasing intensity of efforts, setting lower wages, etc. - is a second key factor weakening labour and leading to a lower wage share in national income. The use of technological change, and ICTs in particular, for creating new products and markets with high Schumpeterian profits, for increasing control over production and labour, for labour-saving (and wage-saving) new processes is a third mechanism associated to the power of capital. Finally, capital's ability to organise production at a global scale has increased profit opportunities and has put workers of advanced and emerging countries in competition with one another, resulting in a lowering of wages in richer economies. In section 4.3 below these mechanisms are examined on the basis of the available evidence.

Figure 2. The four engines of inequality and their impact on income distribution



The second engine of inequality is the emergence of an oligarchs capitalism characterised by the concentration of income, wealth and power in the top 10% of citizens – and most notably in the ultra-rich top 1%. This is the result of the control that such group – largely made of top managers – has on income flows, returns to capital and positions of rent that have nothing to do with economic merit or productivity. They are able to capture a larger share of income in the forms of rents, financial returns and top labour compensation, reducing resources for wages and for profits reinvested in production capacity. At the top of the distribution wealth is even more concentrated than income and is largely transmitted through inheritance, reproducing an oligarchy of money that makes today's capitalism increasingly similar to the ancien régime. The impact on inequality is visible in the rise of the top 10% of incomes, in the growing concentration of wealth, in the greater importance of inheritance in shaping the distribution of wealth, as we will see in section 4.4 below.

The third engine of growth is the individualisation of economic and social conditions, with a breakdown of collective identities, leading to greater disparities within wages – even after we exclude the compensation of top managers. A lower wage share is distributed among workers that are increasingly divided in terms of family backgrounds, education, employment contracts – permanent or temporary, full time or part time, etc. – and are polarised in terms of skills and wages. As we will see in section 4.5 below, these mechanisms introduce greater inequality among wage earners and among the bottom 90% of incomes.

Finally, the fourth mechanism of inequality is the retreat of politics. This is the results of changed political power relations and of policy views that have reduced the role of the State and expanded the range of market processes, resulting in higher inequalities. Moreover, the retreat of politics has reduced the space for redistribution through taxes, public expenditure, provision of public services outside the market. The other three engines of inequality have also an impact on the reduced room for redistribution. As shown in Figure 4.2, the power of capital and the emergence of oligarchs capitalism are associated to the rise of profits and in particular of highly mobile financial rents; this reduces the tax base a country can rely on, as fiscal heavens are increasingly used for tax evasion and elusion by corporations and the rich. The weakening and individualisation of labour reduce the wage share of national income, that is already significantly taxed with very low progressivity; resources for redistribution can hardly come from such a source. Moreover, the greater fragmentation of labour makes it difficult to have a consensus on the possibility to carry out a significant redistribution within wage earners. The reduction or cancellation of inheritance taxes favours the intergenerational transmission of huge wealth disparities. Again, the overall outcome of the retreat of politics and of reduced redistribution is the rise of the top 10%, and the fall of a more fragmented bottom 90%.

4. The power of capital over labour

In the last three decades economic, social and political processes have shaped this change in the balance of power between capital and labour with far reaching consequences on the rise of inequality. However, we need to identify the specific mechanisms that, in a context more favourable to capital, have reorganised the economic system and its inegalitarian outcomes. In Figure 4.2 above we consider the four most important ones – finance, the control over labour, technological change, globalisation.

The power of finance

The rise of finance – and the greater importance of financial wealth as opposed to productive capital – is the specific form taken by the power of capital in the last three decades. Section 4.2 above has already discussed at length the dynamics of capital and the characteristics – and dangers - of financial accumulation. The implications for inequality have already been documented, moving from the work of Piketty (2013); they include the higher concentration of income and wealth at the top of the distribution and the lower wage share in national income.

The control over labour

The relationship between capital and labour is the fundamental relation of capitalism, at the source of the accumulation of capital and of the class division of society. The evolution of capitalism has been largely shaped by the conflict between the logic of capital accumulation and workers' efforts for asserting labour and social rights. In particular, workers demand the right to organise in unions, higher wages from collective labour contracts, employment security, reduced working hours, safer working conditions, greater control over the pace and content of work, social insurance, welfare protection, sometimes even workplace democracy and some control over business decision making.
These multiple dimensions show how the whole society is affected by capital-labour relations. In fact, the capital-labour conflict is not played out in workplaces alone; public policies reflect this balance of forces and introduce legislation that may expand or reduce the protection of labour and social rights. Labour legislation can provides guidelines on employment contracts, wage setting and minimum wages, that have direct effects on the distribution of income and inequality. As we have already pointed out, in advanced countries the post war decades have been a period of expanding labour rights; conversely, since 1980 a broad reversal in legislation and capital-labour relations has led to worsening conditions for workers. Glyn (2006, ch.5) provides an effective overview of "labour's retreat" in the last decades in terms of job losses, work hours and intensity, wages and union power.[9] We address here some issues where the ascendancy of capital has led to greater control over labour. In section 4.6 below attention will be devoted to the individualisation of labour as an additional engine of inequality.
The starting point here is the functional distribution of income between wages and profits - the most immediate indicator of the balance of forces between labour and capital. A large evidence shows that in advanced countries in the last decades more than 10 percentage points of national income have shifted from wages to profits, resulting in a major increase in inequality (Franzini and Pianta, 2015, ch.2). Real wages have fallen for most workers, in most countries and industries. Labour has been less able to capture an adequate share of the economy's productivity gains; since 2003 one third of European workers has experienced a decline in real wages, and almost two thirds saw their wages growing, on average, less than their labour productivity (Bogliacino, 2009).
This outcomes, however, result from a combination of factors that may weaken workers, employment and wages. The 2012 OECD Employment Outlook argued that the reduction in the labour share was linked to labour-displacing technological change, to a rise in domestic and foreign competition – including delocalisation and imports that replace national production – and to the reduction of public ownership through privatisations. The report suggested that "the reduction in the labour share associated with domestic and foreign competition and reduction of public ownership could be partly explained by their effect on workers bargaining power" (OECD 2012, p.111). Moreover, it argued that greater competitive pressure reduced the coverage of collective bargaining systems and the role and membership of trade unions; more workers have their wages set outside national collective contracts negotiated by the unions and local or individual bargaining increases wage dispersion. All this "probably explains part of the deterioration of low-skilled workers' position" (ibid.).

[9] A classical view on how changes in capital-labour relations resulting from high employment affect capital's investment decisions and business cycles is in Kalecki (1943). A global perspective on the long term evolution of the conditions of labour is in Silver (2003); the impact of globalisation on labour and inequality is examined in Freeman (2009). The ILO reports on wages and employment (ILO, 2014, 2015) document the key dimensions of the current weakening of labour in terms of falling wage shares and precarisation of jobs. The qualitative dimension of work in Europe is explored in Eurofound (2015b).

The evolution of workers' bargaining power is closely associated to the importance of trade unions in organising labour, negotiating labour contracts, obtaining better conditions; it has been shown that a stronger union presence is conducive to lower inequalities within wages and in the economy as a whole (Card et al., 2003; Visser and Checchi, 2009; Checchi et al., 2010). Associated aspects include the extent of employment protection legislation, the presence of minimum wages, the coverage of union contracts in the workforce; all these aspects tend to be grouped together in the concept of labour market institutions. Stronger institutions have an egalitarian effect on wage disparities; in recent decades the weakening of such labour market institutions has been associated to rising inequalities also among wage earners (Salverda and Checchi, 2015).

It is remarkable that the last OECD report on inequality (OECD, 2015) emphasises the responsibility of weaker labour market institutions in the rise of wage inequality and argues for a reversal of policies. The report acknowledges that "previous analysis has shown that declining union coverage had a disequalising effect on the wage distribution" and that "high union density and bargaining coverage, and the centralisation/co-ordination of wage bargaining tend to go hand in hand with lower overall wage inequality in both OECD countries and emerging economies" (OECD, 2015, p. 42; see also OECD, 2011). A specific attention is devoted to the rise of non-standard jobs that "can also be associated with precariousness and poorer labour conditions", lacking "employment protection, safeguards and fringe benefits enjoyed by colleagues on standard work contracts"; the consequences are that "a non-standard job typically pays less than traditional permanent work (…). These earning gaps are especially wide among low-skill, low-paid workers: non-standard workers in the bottom 40% of earners typically suffer wage penalties of 20% (…). Non-standard workers also face higher levels of insecurity in terms of the probability of job loss and unemployment and, in the case of temporary workers, report significantly higher job strain" (ibid. p. 31).

The OECD – alongside other major international organisations – has long asked governments to introduce labour market "reforms" going in the direction of more flexibility, lower employment protection and union power – all policies that have contributed to increase inequality. In an interesting reversal, the OECD – with a view to reduce inequality - now advocates a minimum wage that "can help supporting low-wage workers and low-income families while avoiding significant job losses (ibid., p. 42); asks for "improving social dialogue and industrial relations" (ibid.); argues that "addressing labour market segmentation and more balanced employment protection are also important elements of enhancing job quality and tackling inequality" (ibid., p.43).

In the same vein, a recent IMF study (Dabla-Norris et al., 2015) on advanced countries shows that a decline in organised labour institutions is associated to higher inequality measured by Gini coefficients, "likely reflecting the fact that labor market flexibility benefits the rich and reduces the bargaining power of lower-income workers". Additional evidence shows that "more lax hiring and firing regulations, lower minimum wages relative to the median wage, and less prevalent collective bargaining and trade unions are associated to higher market inequality" (Dabla-Norris et al., 2015, p.26).

Advanced countries, however, do not seem to pay attention to such advice form the OECD and the IMF; in fact the labour reforms currently introduced in Italy, France and other countries go in the direction of precarisation of labour and reduced employment protection.[10] A reversal of the weakening of labour will have to come from a new ability of workers to organise and obtain better wages and working conditions. As Piketty argued, "the history of income distribution is always a deeply political history that cannot be reduced to purely economic mechanisms" (Piketty, 2013, p.47); the degree of inequality in a society directly depends on the power relations between capital and labour.

[10] In Italy the government has introduce in 2014-2015 the "Jobs Act" with wide ranging reforms reducing employment protection. A critical analysis is in Sbilanciamoci! (2015).

Technological change

The changing forms of the power of capital over labour have been deeply shaped by changes in technology. In advanced countries, the last three decades have been characterised by the emergence of the new techno-economic paradigm based on Information and Communication Technologies (ICTs), with a growing role played by the production and use of knowledge, by R&D and innovation, and by the diffusion of new organizational forms (Freeman and Louça, 2001). This has led to the decline of old industries - often with a workforce of medium skilled, unionised workers - and the emergence of new industries and firms with high opportunities for Schumpeterian profits associated to temporary monopolies due to technological advantages.

The rising inequalities in jobs and wages have been investigated by a large literature within the economic mainstream suggesting that skill biased technical change is the main explanation (Acemoglu, 2002). The argument is that the diffusion of ICTs has led to an upskilling of employees - measured by the ratio of white to blue collar workers, or years of education - and to higher wages for the workers with skills that are complementary to the new technologies (and therefore increase workers' productivity).

This interpretation rests on the idea that wage dispersion is rooted in technological change at the firm level, as innovative firms substitute low-skill workers with high-education, high-wage workers whose competences are complementary to ICTs. The mechanistic view of technology and its effects is a major limitation of this approach; all innovations are assumed to be incorporated in physical capital and are expected to be complementary to high skills. As a consequence, both the high-skill/low-skill employment ratio and the wage premium associated to high skills are expected to increase, and are considered as the sole drivers of higher wage inequality. As argued by Nascia and Pianta (2009), the key process in advanced countries is not technology-driven upskilling, but rather a polarisation of jobs and wages on the base of skills. In recent years, even mainstream approaches have acknowledged the polarisation of jobs, often on the ground of a task-based approach (Autor, Katz and Kearney, 2006; Goos and Manning, 2007; Acemoglu and Autor, 2010; Goos et al., 2014), but a deeper understanding is needed of the diversity of patterns of technological change and of their consequences wages and inequality.

Technologies are different. Changes in technology – together with those in labour relations and international production - are indeed affecting the evolution of jobs, skills and wages, but in ways less deterministic than those argued by the skill biased technical change view. Building on evolutionary perspectives, we can argue, instead, that technological change is highly uneven across industries and it is important to distinguish between strategies of technological competitiveness based on new products, and of cost competitiveness based on new processes, considering their different effects on jobs, skills, wages and profits. A few studies have examined the operation of these mechanisms in Europe.

In investigating the skill composition of employment, the idea of a general upskilling of the workforce does not stand a closer scrutiny. When the white collar/blue collar ratio or the high/low education ratio are replaced by data on employees broken down in the main professional groups – Managers, professionals, technicians; Clerks; Craft workers; Manual workers – a pattern of polarisation emerges. A study on 36 manufacturing and service industries for the five largest EU countries shows that in the period of expansion between 2002 and 2007 jobs creation is found for managers (+3.5% per year) and manual workers (less than 1% per year) only, while job losses affect clerks and skilled manual workers; such polarising dynamics is particularly strong in services where most job creation takes place. Between 2007 and 2011, when the crisis hit, job losses have been huge among blue collars (close to -6% per year), modest among clerks, and employment has been stable for managers (Cirillo et al., 2014). The explanation of such dynamics is rooted in the different technological strategies of industries; product innovation and high education lead to more jobs for the highest skills; cost competitiveness and process innovation strategies destroy jobs for

clerks and craft workers; manual workers may increase mainly as a result of growing demand (ibid.).
Given this dynamics of job polarisation, what happens to wages? Differences among technologies again emerge as an important factor, alongside the usual factors such as education, skills and use of ICTs. A study at the industry level, covering ten manufacturing and service sectors in seven European countries (Croci Angelini at al., 2009) has found that a higher wage polarisation is found within industries with strong product innovation, a fast employment dynamics and high shares of workers with university education; sectors with greater opportunities for expanding markets and jobs are likely to show increasing wage inequalities, as managers and high skill workers can obtain part of the rents from innovation. Conversely, wage compression is typical of industries characterised by the diffusion of new process technologies, high shares of workers with secondary education who can increase their competences and productivity by working on new machinery, obtaining higher relative wages (usually in a context of relatively high unionisation and labour market regulation), leading to reduced wage disparities.
Is technology affecting also the functional distribution of income between profits and wages? An investigation on the dynamics of profits and wages in manufacturing industries, covering ten European countries in the period 1994-2001 (Pianta and Tancioni, 2008) has shown that the real growth of wages per employee was less than half that of total profits. In high innovation sectors, profits increased by close to 8 per cent a year, three time as fast as wages. In low innovation industries profits growth was 3.5 per cent, again more than twice that of wages. The parallel explanations of profit and wage dynamics show that the distributional conflict is a strong factor in the evolution of incomes and that both profits and wages grow on the basis of increases in labour productivity. Wages tend to grow faster in the sectors where innovation expenditure (largely due to wages for high skill researchers) is higher, while profits are driven both by the importance of new products and market power, and by restructuring through the diffusion of new processes and wage depressing job reductions. The lesson of such evidence is that technological change has the general effect of favouring profits over wages. Profits increase through separate mechanisms in industries relying on technological or cost competitiveness; conversely, wages grow only when innovation is associated to higher skills of labour; the result is greater inequality rooted in the functional distribution of income (ibid.).
Technological change is indeed an important mechanism shaping inequalities, but the above evidence shows that there is no mechanistic effect on jobs and wages. The choice on the direction of innovation depends on the opportunities that are available to industries and on the strategies pursued by firms – that are closely linked to the search for greater control over labour. Different technological strategies have different effects on the distribution between profits and wages, and on inequalities among employees in terms of jobs, skills and wages.

International production

The increasing international openness of economies – with greater flows of trade, knowledge and investment – is a major mechanism affecting the dynamics of wages and profits, as well as inequalities among employees. We have already seen in the section on the rise of finance how important the opening up of international capital flows has been for the financial expansion of the last three decades. In this section we focus on the specific type of globalisation that concerns the international organisation of production.
A large literature has shown that in advanced countries the relocation of production abroad (or even the threat of relocation) has depressed domestic wage dynamics, especially for blue collars and low-skilled white collar workers (Feenstra and Hanson, 2003). In the new system of international production firms tend to maintain in advanced countries highly skilled activities of management. R&D and finance, with relatively few highly paid employees, while reducing jobs and wages for medium and low skilled office and factory workers, whose jobs are more likely to be transferred in

low wage developing countries; the outcome in rich countries is a rise in wage inequality, and greater polarisation of jobs and skills. Recent studies have focused on the strategies of offshoring parts of production to low wage countries (or to countries with lower environmental regulations, labour rights, union power, etc.), resulting in complex global value chains where the final value added of goods comes from the fragmentation of production in several countries. Such offshoring strategies are often designed with the explicit purpose to reduce wage costs, leading to higher profit shares (Milberg and Winkler, 2013).

The global distribution between profits and wages is affected by several mechanisms. Freeman (2009) argued that globalisation has doubled the labour force available in the world economy and lowered the overall capital/labour ratio, leading to a greater (relative) scarcity of capital, resulting in higher profits and lower wages. The same analysis has shown that increasing trade, greater openness of national economies and tariff reductions are likely to contribute to greater income inequalities within countries (ibid.).

Moreover, the effects of technology and international integration on employment and wages are closely connected, as firms facing international competition introduce more innovations, and more innovative firms have a competitive advantage in foreign markets. A study comparing the effects of technology and trade on the reduction of low skilled workers - in the case of US industries in the 1990s – found that the impact of innovation was dominant, while international trade appeared to play a minor role (Berman, Bound and Machin, 1998).

Again, the ability to organise production on an international scale has strengthened the control of capital over labour, and the combined effect of these two mechanisms has reduced jobs, weakened unions, lowered wages and increased inequalities.

Building on the framework summarised in Figure 4.2 above, we have been able to show how important the power of capital has been in setting in motion four major processes – the rise of finance, control over labour, technological change, international production - that have reshaped capitalism and have resulted in greater profits and financial rents, lower wages, greater disparities among workers and higher overall inequality.

5. Oligarchs capitalism

The second engine of inequality is the rise of oligarchs capitalism, where a limited number of people concentrate a large and increasing share of income and wealth, and societies are exposed to their economic power and political influence. The economic and policy-related mechanisms that have skewed the distribution of income in favour of the richest individuals require specific studies on the variety of factors that have affected such outcomes. In advanced countries a major part of today's inequality is due to the fast rise of top incomes – those of the richest 1% or 5% of the population – that result from a combination of incomes sources (Atkinson and Piketty, 2007; Alvaredo et al., 2013; Franzini and Raitano, 2015).

The richest individuals have benefitted from the rise of the share of profits in national income and from the exceptionally high financial rents fuelled by speculative gains in increasingly complex (and fragile) financial markets. At the same time, traditional national policies that had contained the rise of top incomes have been removed: inheritance taxes have been cancelled or greatly reduced in most countries; the progressive nature of income taxes has been reduced and tax rates on top incomes have been cut everywhere; tax loopholes have been granted to firms and rich individuals. The liberalisation of international financial flows – and the lack of fiscal harmonisation even in Europe - has also contributed to this outcome, with increasing opportunities for the rich to report their incomes in tax heavens with minimal tax rates.

But there is more to it. Within "wage" incomes an unprecedented high compensation has gone to top managers and "superstars" in selected professions – lawyers, architects, media, entertainment and sport stars. The composition of top incomes by source of earnings has changed; while in the past they came almost exclusively from capital and rents, in recent decades the broadly defined share of labour compensation has increased. In the top 0,1% of incomes in the US the share of income coming from labour has gone up from 20% in the 1970s to around 45% today (Alvaredo et al., 2013). In Italy, for the top 1% the share of labour incomes (from employment and self-employment) rose from 46 to 71% (Alvaredo and Pisano 2010).

An explanation of these developments has come from Rosen (1983) who has argued that superstar compensation is the result of two factors; first, in a number of markets demand is concentrated on those who are considered to be the best in their field (i.e. the superstars); second, technological development allows superstars to satisfy at no additional cost an ever increasing share of the market (as with global television coverage of major sport events). Along similar lines, Frank and Cook (2010) talked of a "winner-takes-all society" where one individual can cover (almost) the whole market at the expenses of all competitors. Explanations like this convey the idea that super-incomes accrue to those who have won an extremely competitive race; they acknowledge however that limited differences in abilities, talents and human capital can result in disproportionate differences in income earned, mirroring what happens in a sport race where there is only one winner.

Such an outcome is rather distant from what we could expect from markets where individuals are compensated on the base of their productivity – resulting from their talents, education and abilities. Proportionality between productivity and compensation is a characteristics of competitive markets; therefore, the argument that super-incomes are earned in extremely competitive markets seems unwarranted (Franzini et al. 2014). In fact, in many instances power rather than competition is the driving force of such extreme distributional outcomes. Power can provide the ability to protect and enlarge one's own compensation at the expenses of others; this allows to reap rents and is a major explanation of the spiralling compensations of top managers. Power can convince the market about who is the best performer in a particular activity. Finally, power can prevent changes in the property rights regime that would lead to a different distribution of incomes among all those who have contributed to create the value which is behind such incomes.

Oligarchs capitalism appears, in fact, as the product of power and privilege. Power and privilege shape the distribution of income and wealth and lead to extreme and unacceptable inequalities. Such extreme inequalities are reproduced across generation through the inheritance of wealth, which is now shaping to a very large extent access to wealth in advanced countries; the results are drastically reduced opportunities for social mobility and a consolidation of oligarchs' power. For all these reasons, power and privilege have to be checked, weakened and reduced through appropriate institutional changes and policies if we want to prevent the extreme inequalities associated to a concentration of income and wealth similar to the one typical of a century ago (for a documentation, see Franzini and Pianta, 2015, ch.2 and 3).

We do not address here the illegal behaviours that may create extreme wealth through criminal activities or corruption in private and public decision making. The power of oligarchs in many countries, however, is often linked to such practices. We can just mention here the studies that have linked inequality and corruption (Uslaner, 2008) and the political connections that are at the root of the fortunes of many millionaires – what has been called "crony capitalism".[11] A greater use of political influence, widespread corruption and a blurring of the boundaries between legal and illegal actions may indeed be an emerging – and deeply worrying - characteristic of oligarchs capitalism.

[11] A report by The Economist ("Planet plutocrats", 15 March 2014) considered a set of industries highly affected by corruption – including oil, gas, chemicals, coal, mining, defence, real estate, ports and airports, telecommunications – and ranked countries on the basis of the ratio between billionaires' wealth coming from such "crony sectors" and GDP. Hong Kong, Russia, Malaysia were at the top of the list; the UK, the US and France ranked at number 15, 17, 20.

6. The individualisation of economic and social conditions

The third engine of inequality is the individualisation of economic and social conditions. This is a process that operates at multiple levels. In cultural terms it includes a breakdown of collective identities, such as those of the middle class and of the working class, that were an important cultural factor in the postwar decades up to 1980 marked by decreasing inequality. In social terms we have experienced a greater complexity of the class structure, with a rise of gender, ethnic, migration and generational factors that have deeply fragmented the social landscape of advanced countries. In economic terms, an individual's income has become more uncertain and less predictable. A greater diversity of employment contracts has emerged, leading to equal jobs with different pay and security. The level of education is not anymore a strong predictor of wage disparities, and a greater role of family background has emerged. In terms of gender, the larger presence of women in employment has introduced deep changes, while in most activities discrimination and glass ceiling effects persist. In generational terms, the employment and income prospects for today's youth are significantly worse than those of a generation ago. Changes in household structure – with smaller families and couples increasingly coming form similar income groups - mean that the same income distribution among individuals may lead to greater disparities at the household levels. Finally, the increasing importance of wealth and inheritance means that standards of living –at the top of the distribution, but also for the "patrimonial middle class" - may be affected by returns to wealth more than by income flows.

In this section we cannot investigate all these multiple dimensions, but it is safe to argue that all such factors have contributed to rising disparities within wage earners; they have also weakened the ability of the "bottom 90%" to resist the rise of the "top 10%", resulting in higher overall inequality. We focus here on the fragmentation of employment conditions and on the role of education and family background. We have already seen in section 4.4 above other ways in which the power of capital has been able to fragment and control labour.

Unequal conditions. The most immediate sign of individualisation of economic conditions is the decline of standard employment - full time, permanent jobs with union contracts, employment protection, social insurance and pension systems. The 2015 ILO reports has documented the rise of non-standard jobs and has showed that "over 6 out of 10 wage and salaried workers worldwide are in either part-time or temporary forms of wage and salaried employment. Women are disproportionately represented among those in temporary and part-time forms of wage and salaried employment" (ILO, 2015, p.13).

We have already seen that such developments have led to lower wages and greater disparities. But there are also longer term effects of such fragmentation of employment contracts. The ILO report emphasises that non-standard workers generally are not covered by existing employment protection rules and social protection systems, including unemployment benefits and pensions. Both have been designed for standard employees and in most countries have not been adjusted to include the needs of non-standard worker, most of whom are women (ibid. p.14). In this way, a more individualised, non-standard employment condition is likely to have a lasting effect on lifetime incomes and pensions, expanding disparities at the bottom of the distribution.

What about the generational divide? Much of the above evidence has pointed out that the youth are disproportionally represented in non-standard employment and have dimmer prospects for obtaining income and wealth compared to the previous generation. This does not mean however that the divide between old and youth is going to shape inequality in our society. Piketty argues that "the rise of human capital and the replacement of class war by age war are in large part illusions" (Piketty, 2013, p.49). The divisions in terms of income and wealth between households at the top and at the bottom of the distribution remains crucial, and there is no base for presenting our aging societies as characterised by a new fundamental divide between equally privileged old people, and equally discriminated youth.

Education and family background. In his book Piketty argues that, facing the dangerous rise of inequality, “the main force of convergence is the diffusion of knowledge and the investment in education, that is essentially a non market mechanism – knowledge being a typical public good (Piketty, 2013, p.47-48). Can education in fact be the answer to inequality?
Mainstream approaches argue that education is a major determinant of workers’ productivity and earnings, in a view that is coherent with both market efficiency and equality of opportunities. An increase in wage inequalities – so goes the argument – simply reflects the higher productivity and compensation of workers with the highest human capital or education.
Research on European countries has found, instead, that in the mechanisms behind wage inequality education plays a modest role; 20% only of wage disparities are due to differences in education, while the rest is due to inequality within groups of workers with the same education (Franzini and Raitano, 2015).
The explanation of such diversity in labour incomes given the same educational attainment can be found in three types of factors: the “structural” specificities of workers’ jobs; the types of labour contracts and labour markets conditions; the “personal” (and family-related) characteristics of individual workers. The former reflect the strong differences across industries and firms in terms of knowledge, R&D, nature of innovation and market power that result in workers’ productivity and end up in earning disparities. The second factor – with an increasingly important role – is related to workers’ labour contracts; in Europe employees with tertiary education but with a temporary or part time contract have a considerable probability of ending in the lowest part of the distribution of income. The third factor points out the role of competences and opportunities acquired not through an education accessible to all, but rather from the family background of individuals; a number of studies have shown that the education and profession of parents are key determinants of the educational attainments and earnings of sons and daughters; in most cases, the influence of the family of origin is stronger than educational levels is predicting individuals’ incomes (Franzini et al., 2013).
A large evidence shows how important the family background can be in determining individuals’ life chances, educational attainments and earned wages. Several studies – ranging from economics to psychology - offer good but partial explanations of this influence; in particular, economic models stress the importance of human capital which is considered both a crucial determinant of individual earnings, and a variable on which family conditions exert a major influence.
The approach of the economic mainstream – rooted in the “the family investment theory” of Becker and Tomes (1979) – states that a family’s income and wealth are the key means for investing in human capital in presence of imperfect capital markets. It is assumed that individual earnings depend on the human capital acquired through education, and that the latter depends on family’s income. Empirical evidence, however, shows that in advanced countries income disparities across generations are highly related to current inequalities, showing a persistence – rooted in family wealth, privilege and networks of connections - stronger than the one expected by the advocates of social mobility through "equal opportunities" and market processes. The countries with higher current inequality seem to be the same where the intergenerational transmission of inequality is higher.
When we investigate the individualisation of economic and social conditions it is important to consider not only the fragmentation of workers in the labour market in terms of education, skills and wages, but also the relevance of family backgrounds – and in particular the network of social contacts and the soft skill acquired - in shaping wage disparities and in reproducing unacceptable inequalities across generations.

7. The retreat of politics

Finally, the fourth fundamental mechanism at the root of today's inequality is the retreat of politics. The need for political action on inequality and a set of policies that could reduce disparities are discussed at length in Franzini and Pianta (2015). In this section we can simply point out the ways public policies could affect – as shown in Figure 2 above – the distribution of income and wealth and the resulting inequalities.

Inequalities in terms of disposable income and living standards are the results of state actions that can mitigate the outcomes of market processes. Governments can act to reduce inequalities through taxation, social transfers and the provision of in-kind services. National experiences widely differ, according to welfare regimes. Public social spending ranges from about 25% of GDP in Nordic and Continental Europe to 19% in Anglo-Saxon countries, where a high share of transfers (43%) is targeted to the bottom quintile of income earners. While there are difficulties in assessing the impact of in-kind transfers, we have seen in Table 2.9 above that advanced countries are able to significantly reduce disparities through such policies. Additional estimates of the reduction in inequality due to the presence of public services – in particular universal access to education and health – suggest that the average reduction of the Gini coefficient on disposable income is 37% in countries of the Nordic welfare regime and 24% in both the Anglo-Saxon and Continental Europe groups (where Italy and Spain are included) (Esping-Andersen and Myles, 2009).

However, when we look at the health conditions of citizens, even the best European welfare states appear to have failed in reducing inequality of life expectancy, as the prospects for the poor have substantially worsened in many countries. Conversely, in advanced countries major egalitarian improvements have been achieved in the 'existential' dimension, reducing inequalities associated to status, gender, ethnicity and other social characteristics (Therborn, 2013, ch.8).

The possibilities of redistribution, however have been constrained by the operation of the other engines of inequality investigated in this paper. The rise of finance and the larger share of profits have been able – to some extent - to escape taxation thanks to their international mobility and the use of fiscal heavens. With stagnant wages (already paying relatively high tax rates), and slow overall GDP growth the flow of public resources available for redistribution has not expanded. Moreover, in the last decades policy changes have directly weakened the extent and the effectiveness of redistribution. The less progressive taxation on income, low taxes on finance and wealth, the reduction or cancellation of inheritance taxes have favoured the rich and increased disparities in disposable income. After the 2008 crisis, especially in Europe, austerity-inspired limits to public deficits and debt, reduced taxation, privatisation of services, reduction of social provisions were introduced. They were expected to help restart growth and have had the opposite result - a prolonged stagnation, with further increases in overall inequality.

But public policy has not been confined to redistribution alone; in the last three decades liberalisation, deregulation and privatisation have been at the centre of government action in all advanced countries, strengthening the other mechanisms of inequality investigated above. What we need to understand, therefore, is the overall role that the retreat of politics has played in shaping a more unequal economy and society. And how a return of egalitarian, democratic politics - with a range of appropriate policy actions - could help reverse the extreme inequality we face today.

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