

Carpentier, V. (2015) "State Education, Crisis and Austerity: An historical analysis through the lens of the Kondratiev cycles", In: Aubry, C.; Geiss, M.; Magyar-Haas, V. and Oelkers, J. (eds) *Education and the State: International perspectives on a changing relationship*, Routledge, 78-102.

STATE EDUCATION, CRISIS AND AUSTERITY:

AN HISTORICAL ANALYSIS THROUGH THE LENS OF THE KONDRATIEV CYCLES

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INTRODUCTION

Socioeconomic crises represent crucial opportunities to explore the connections and tensions between wealth and welfare and their implications for the public sphere and educational policy. The global economic downturn that unfolded in 2008 is no different, and has generated alternative diagnoses and policy responses that directly question the relationship amongst education, the state, social justice and economic performance. A first type of interpretation of the economic downturn focuses on the fiscal crisis and considers the implementation of austerity policies as a key condition for restoring economic growth and, in the longer term, reducing inequalities through a trickledown effect. A second approach considers those same inequalities as a cause rather than a consequence of the crisis and sees their reduction through the implementation of countercyclical increase of public funding as the way forward to reactivate economic growth by an increase of demand and an investment in the quality of the labor force.

State education (considered in this paper as the public funding and provision of education) is at the interface of these debates connecting taxation and the production of distribution of growth. This is an important issue because, especially during economic crises, the particular virulence of such debates question and sometimes threaten the connections amongst the cultural (creation and transmission of knowledge), social (contribution to social cohesion, mobility and citizenship), productive (impact on employability and productivity through innovation and training) and financial (public or private funding) dimensions of public educational systems. Moreover, because of its potential to either reinforce or address socioeconomic inequalities (Apple, 1982; Unterhalter and Carpentier, 2010), education has been increasingly considered either as a driver of the crisis or a solution to it.

Thus, during hard times, the public educational system is often blamed for not reinforcing social cohesion, for not supporting productivity, and for being a financial burden for growth. However, the analysis at the interface of political economy and history of education developed in this paper suggests that, from a historical point of view, the relationship between austerity and crisis is not as straightforward as it might seem today. The lens of the long economic cycles shows that, before the Second World War, the growth of state education used to take place during economic crises as a key part of a broader historical expansion of a social infrastructure of human development (Carpentier and Michel, 2010), which played a key role in reducing the tensions between inequality and economic performance. Thus, the successive phases of historical expansion of public educational systems were responses (and indeed solutions) to socioeconomic crises, rather than their cause. Such mechanisms contrast with the austerity policies which have been implemented to address the various economic crises which have unfolded since the mid-1970s. Therefore, there could be a historical case we can refer to when attempting to develop countercyclical public policy today.

Section 1 presents the empirical findings and their theoretical interpretation. The quantitative historical data reveal a correlation between public funding in education and Kondratiev cycles. These trends are interpreted by applying the theory of systemic regulation, which considers that the historical connections and tensions between the public funding of social activities driving human development (including education) and the economic structure lead to the upturns and downturns of the economy expressed by the Kondratiev cycle. Thus, the fluctuations in funding in education can be understood as part of a wider trend linking the State and the transformations of the socioeconomic system. The lens of economic cycles designates crises as turning points in the recurrent build up of tensions between economic growth and inequalities. Section 2 shows that prior to 1945, economic crises were contemporary of countercyclical expansion of public educational systems that acted as a response to blockage of the growth regime. Section 3 examines a reversal from countercyclical to procyclical expenditure on education after 1945, whereby education shifted from a corrector of crisis

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to a driver of the postwar growth until the 1970s crisis led, unlike its predecessors, to a slowdown of public funding in education. Section 4 reflects on how this historical lens can help us to interpret the post 2008 crisis and discusses some potential scenarii.

1. KONDRATIEV CYCLES, CRISES AND STATE EDUCATION

Reactions to what was commonly called the 'credit crunch' that engulfed the world economy in 2008 are worth careful examination. At first, analysts believed that this crisis would be short lived and that some adjustments would correct the external turbulences. Then, as the crisis deepened, the idea emerged that these exogenous factors were, in fact, revealing internal dysfunctions at the heart of the economic system. In other words, this crisis was systemic and the mechanisms that drove the growth could be the same as those that had provoked the crisis. The recurrence of such crises makes it worth exploring existing historical interpretations of the long economic cycles. The approach developed here considers that education, as a key interface of economic and human developments, is crucial in explaining the cyclical fluctuations of the economy and the recurrence of economic crises and their overcoming. Similarly, economic cycles can help us to (at least partially) understand the mechanisms behind the historical phases of expansions and setbacks of education.

1.1 CRISIS AND ECONOMIC CYCLES: DEBATES AND INTERPRETATION

Galbraith concludes his book on the depression of the 1930s by saying that "the wonder, indeed, is that since 1929 we have been spared so long. One reason, without doubt, is that the experience of 1929 burned itself so deeply into the national consciousness. It is worth hoping that a history such as this will keep bright that immunizing memory for a little longer" (1954, p.29). The world economy has faced major structural crises since Galbraith's warning and the most recent one has sparked revived interest in his analysis of the tensions between the financial and economic spheres. Although the depression of the interwar years perfectly illustrates these tensions and has become the point of reference for making historical parallels with the current crisis, it is worth noting that the recurrence of phases of crisis since the industrial revolution of the late eighteenth century has also been observed and interpreted in major works on economic cycles.

Although other cycles of shorter periodicity have been identified, this paper focuses on the Kondratiev cycle (or long wave), named after the Russian economist Nikolai Kondratiev (1892-1938). In the 1920s, he analyzed historical economic and financial statistics in major industrialized countries and identified a succession of 20-to 25-year-long phases of prosperity and depression. Four long waves of approximately 50 years have since been identified, each showing expansion and depression phases: 1790–1820/1820–1848; 1848–1870/1870–1897; 1897–1913/1913–1945; 1945–1973/1973–?.

Kondratiev cycles remain highly contentious and there are ongoing debates among economists and historians about their existence as well as reservations about the deterministic view of history they tend to represent (Loucã and Reijnders, 1999). These are valid and important criticisms. However, a cautious interpretation of Kondratiev cycles may contribute to productive debate, not least in responding to Hobsbawm's (1997) call for collaboration between historians and economists to understand socioeconomic transformations (Milonakis and Fine, 2009). Kondratiev cycles have also been politically contentious. Their depiction of alternations of phases of growth and crisis has been criticized by some on the left for inferring that the capitalist system can always regenerate itself and others on the right for implying that crises are inevitable features of the capitalist development.

1.2 THE THEORY OF SYSTEMIC REGULATION AND THE KONDRATIEV CYCLE: EDUCATION AND THE HISTORICAL CONNECTIONS AND TENSIONS BETWEEN HUMAN AND ECONOMIC DEVELOPMENTS

The theory of the systemic regulation interprets the Kondratiev cycle as the expression of the dialectical relationship between economic and human developments (Marx, 1894; Fontvieille, 1976; Boccara, 1988). The cyclical economic upturns and downturns are seen as the results of the long term interactions and tensions between the development of social activities contributing to human development (and indirectly to economic performance) and the economic structure.

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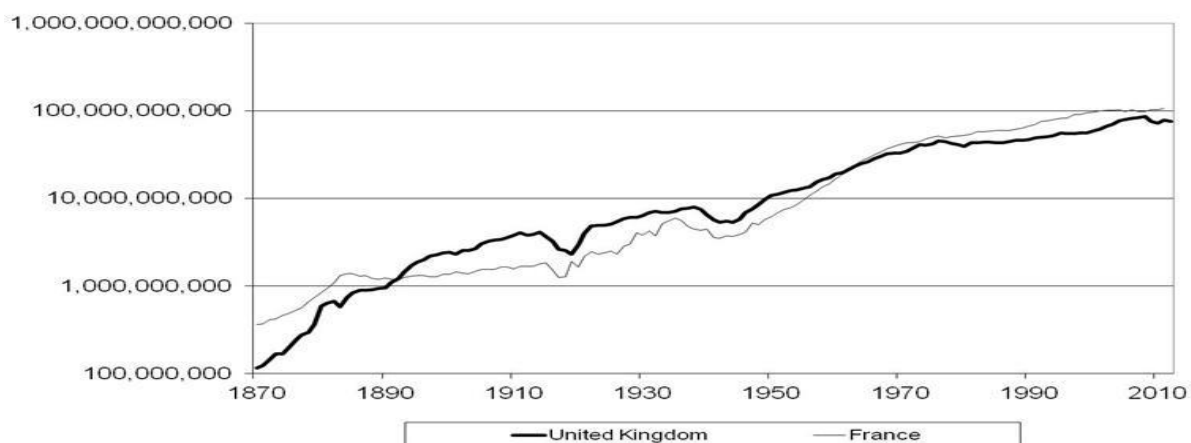
Therefore, Kondratiev cycles can be considered as the product of internal systemic connections and tensions between wealth and welfare. Within that approach, crises are caused by the cyclical reemergence of socioeconomic inequalities, which eventually contribute to the disruption of economic efficiency and profitability. Reversibly, economic recovery depends on periodic transformations of the socioeconomic structure contributing to the reduction of inequalities and the revival of productivity. In other words, economic crises represent critical turning points when the social justice and economic agendas are "forced" to meet in order to revive the system. The following will suggest that social spending on human development (including education) is a key driving force behind this cyclical process of transformations.

The paper will look at the long term relationship between education, the state and economic cycle using empirical data produced by a research programme on the historical development of social spending. They have highlighted important specificities but have also revealed a common correlation between the fluctuations of public funding towards human development and Kondratiev cycles. Thus, it is important to note that, although this paper focuses on education, similar trends have been observed in relation to other social spending, such as health and pensions (Domin, 2000; Michel and Vallade, 2007; Reimat, 2000).

1.3 METHODOLOGIES, KEY EMPIRICAL OBSERVATIONS AND POTENTIAL INTERPRETATION: THE FLUCTUATIONS IN PUBLIC EXPENDITURE ON EDUCATION AND ECONOMIC CYCLES AND THE 1945 REVERSAL

The findings discussed below are based on a construction of historical statistics on education using the method of quantitative history. This method follows the principles of national accounting and provides a stable frame to integrate financial and other data, and allow comparisons across time and space (Marczewski, 1961). A research programme of quantitative histories of funding in education in the UK (Carpentier, 2001 and 2003), France (Fontvieille, 1990; Carry, 1999), Germany (Diebolt, 1997) and the US (Carpentier, 2006a) reveal three key trends and patterns discussed here from the British and French perspectives:

FIGURE 1. PUBLIC EXPENDITURE ON HIGHER EDUCATION (1990 GEARY KHAMIS\$) 1921-2012 ¹



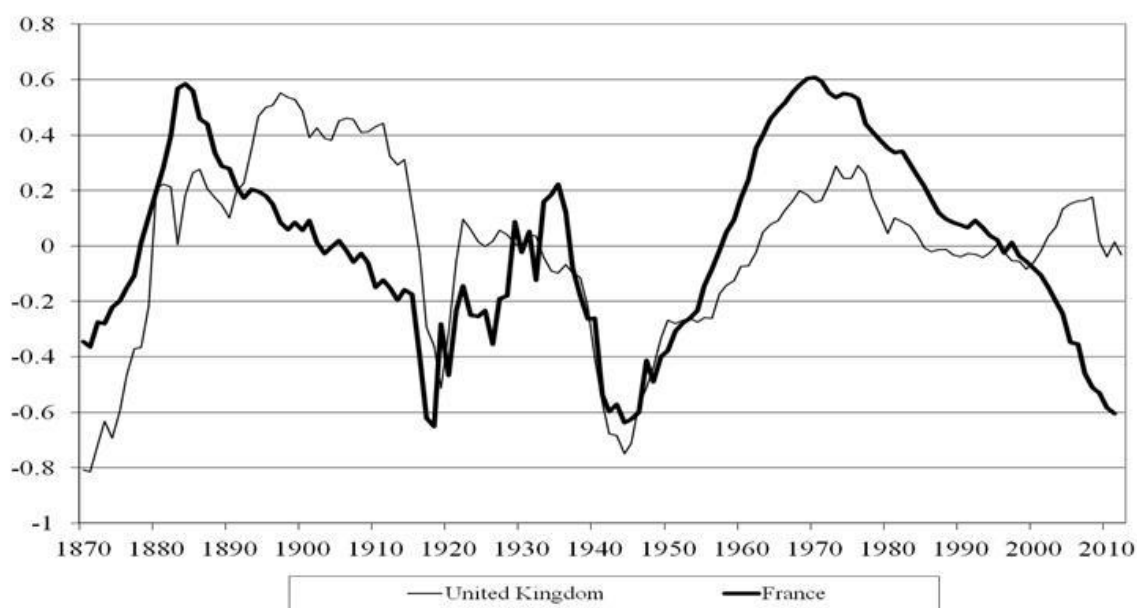
- The first finding reveals a huge historical expansion of public expenditure on education (figure 1)

¹ Financial series are expressed in purchasing power parity in 1990 Geary-Khamis USD (PPP). PPP can be defined as a conversion rate that quantifies the amount of a country's currency necessary to buy in the market of that country the same quantity of goods and services as a dollar would in the US. Such a tool is necessary in order to give a comparative estimate of the value of educational expenditure, eliminating differences in price level between countries. The PPP indices series are derived from Maddison's calculation of GDP at PPP USD (Maddison 1995, 2000) and updated (<http://www.ggdc.net/maddison>). The GDP at PPP USD was then divided by the GDP expressed in current USD to obtain the PPP index and applied to the expenditure series. After 2008, data are updated, using OECD as a source (<http://stats.oecd.org/Index.aspx?DataSetCode=PPPGDP>).

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- The second finding shows substantial fluctuations in public expenditure on education connected to long economic cycles (figure 2)
- The third key finding signals that these fluctuations in public expenditure on education were countercyclical before 1945 and became procyclical afterwards (figure 2).

FIGURE 2. FLUCTUATION OF PUBLIC EXPENDITURE ON EDUCATION (1990 GEARY KHAMIS\$) (SECOND ORDER DEVIATION FROM THE REGRESSION CURVE) 1921-2012. R2=0.97 (UK) AND 0.967 (FRANCE)²



These empirical findings led to considering the possibility of a reversal of the historical relationship between economic growth and public expenditure on education around the Second World War. Based on the theory of systemic regulation, the idea of a 1945 reversal led us to formulate two key assumptions about the links between education and economic crisis:

- Until 1945, public educational systems played a key role in responding to economic crises by contributing to the political, social and technical changes necessary for economic recovery. The expansion of public expenditure on education is contemporaneous of the socioeconomic crises and contributes to their overcoming by using underused capital to reduce inequalities and revive the perspectives of growth and profitability.
- The post 1945 procyclical expansion of funding in education shows that public investment in education became a driver of growth rather than a corrector of crisis. The slowdown of public funding in education following the post 1970s downturn contrasts with what happened during previous economic downturns. This questions the effectiveness of the current austerity policies that are supposed to respond to the crisis since 2008.

Before examining in more details the links between public funding of education and economic fluctuations, it is important to acknowledge some of the limitations of an analysis of education based on the sole economic and financial dimensions. Firstly, it is important to note that this interpretation of the phases of expansion and setback of education in relation to economic cycles should be considered alongside other political, social and cultural analyses (Apple, 1982; Ball, 2008; Dale,

² A regression curve is the best-fitting curve drawn through a scatter-plot of two variables. It is chosen to come as close to the points as possible and thus represents the shape of the relationship between the variables (here the expenditure and the time) and the long-term trend if the series were regularly distributed. The deviations from the regression curve represent the cyclical fluctuations around the trend. Nine-year moving averages are sliding averages that smooth the data in order to ease the examination of the trend and changes.

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1989). Secondly, inequalities in education are not only related to income or social class, but also intersect with gender and ethnicity and other potentially underrepresented groups (Carpentier and Unterhalter, 2011; Gillborn, 2008). Thirdly, funding in education is a necessary but not sufficient way to evaluate educational development. Changes in funding were contemporary of key other qualitative developments in policy and practices explored by historians of education (Aldrich, 2006; McCulloch, 2011; Simon, 1960). Goodson has also highlighted some connections between the Kondratiev cycles and non financial areas, such as curriculum reforms (2005). Fourthly, an increase in funding should but does not necessarily lead to improvements in equity and quality.

The next two sections will explore the ways in which the post 1945 reversal can help us to reflect on the relationship amongst public education, prosperity and austerity.

2. CRISES AS OPPORTUNITIES FOR SOCIOECONOMIC TRANSFORMATIONS: THE COUNTERCYCLICAL GROWTH OF PUBLIC EDUCATION BEFORE 1945

The idea that, before the Second World War, fluctuations in public funding in education were reversed to economic cycles is rather counterintuitive. In today's world, it seems rather paradoxical that educational funding could expand at a fastest rate during hard times and at a slower pace during phases of prosperity. One possible way to interpret this trend is to consider the role of education in the growth regime inherited from the Industrial Revolution that prevailed until the Second World War.

2.1 GROWTH MODEL, SOCIAL SYSTEMS AND PUBLIC FUNDING IN EDUCATION BEFORE 1945

The typical pre 1945 growth model born out of the first wave of industrialization was based on a productivity regime mainly driven by the reduction of the cost of productive forces rather than their qualitative progression. A key problem with this model—which privileges physical over human capital—is the inherent development of inequalities that constitutes both its short term success and its long term unsustainability. The cost reduction on wages and social spending increased immediate profitability but, in the long term, led to a recurrent structural underinvestment in the development of the workforce (and the population), which harmed productivity. This decline in efficiency, coupled with the widening of the gap between production and consumption, produced a situation of overaccumulation of capital (an abundant capital that cannot be invested efficiently and turned into profit), leading to a socioeconomic crisis.

That is in this context that the approach of the systemic regulation (Fontvieille, 1976) considers the countercyclical acceleration of public funding in social activities as a key driver of economic recovery. During the crisis, the transfer of the overaccumulated capital towards productive social spending (in education but also health, pensions, housing, sanitation and wage policies) rebalanced the productive forces and produced a qualitative shift in production. Social spending helped redynamize the historical construction (and funding) of a social infrastructure of human development (Carpentier and Michel, 2010), reducing inequalities and reviving the perspectives of growth and profitability. Thus, crises offered opportunities to realign the economic structure, social change and technological innovation. This can be connected to neoschumpeterian's analysis of the crisis as a period of reassessment of the connections between technological and social systems contributing to develop a new sociotechnological paradigm driving the recovery (Freeman and Loucã, 2001; Perez, 2002).

The combination of the systemic regulation and neoschumpeterian frameworks help to explain (at least partially) why the successive crises that took place from the Industrial Revolution to the Second World War were decisive moments for the expansion of education as part of wider transformations to reduce inequalities and revive growth. Crucially, this economic interpretation of educational development must be considered alongside other political and social analyses of the historical expansion of education. The state of the economy affects (negatively or positively) the social justice rationale by creating the conditions permitting to allocate more (or less) funding to the social sphere. In other words, pre 1945 economic crises were key moments when the economic urgency to develop

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education in order to revive growth and profitability met the political and social rationales for social change and the reduction of social inequalities.

Importantly, the examination of the process of mediation by which the overaccumulated capital is invested in social activities offers an interpretation of the cyclical advances and setbacks in state intervention alongside other funders or providers of education, such as industrialists, philanthropists, workers' associations or voluntary enterprises. What is important is that those countercyclical education developments contribute to the resolution of the crisis because they took place outside the rules of the market and do not claim a share of profit. This may include private and public funding. For example, during the first crises of the 19th century, countercyclical funding in education were initially carried out by industrialists' themselves (for example through donations to voluntary schools or hospitals) who used philanthropic educational activities as opportunities to channel overaccumulated capital towards social activities that will benefit their workers and, in the longer term, their productivity and future profits (Fontvieille, 1990).

However, these private contributions gradually reached their limits. The transformations necessary to overcome each new phase of depression required further investment in order to sustain more sophisticated innovations and the qualitative development of a larger proportion of the labour force. This was beyond the financial capacity or the will of industrialists or other private contributors. This prompted the State to play a role of mediation and redirect, through taxation, the overaccumulated capital towards education, thus contributing to develop technology and skills in order to find new path of productivity.

It is important to note that such transformations which were clearly driven by economic necessity, also combined with social and political unrests and demands which transcend the sole needs from the productive system. This led to a generalization of some of the rights initially given to workers to the whole population. Crises were therefore also key moments when the state synchronized its economic role and legitimation (Hartley, 2010). This gradual shift towards more State intervention and social rights after each of the successive crises explains partly the reversal of the relationship between education and economic growth that took place after 1945 and the emergence of the welfare state. This also explains the ongoing tensions between educational and economic systems which have built up since the 1970s. This explains why it is important to explore in further details the historical process prior to 1945.

2.2 THE COUNTERCYCLICAL EXPANSION OF EDUCATIONAL SYSTEMS: THE CASES OF FRANCE AND THE UK 1833-1945

The following traces back the origins of the countercyclical development of educational systems in France and the UK until the Second World War.

The first Kondratiev cycle (1790s-1840s): first setback of the industrial revolution and early development of state involvement in elementary education

The upturn and downturn of the first Kondratiev cycle corresponded respectively to the emergence of the first industrial revolution (1790s-1820s) and its first setback (1820s-1850s). The rapid industrialisation led to previously unimaginable increases in productivity levels but also put some strains on social systems and contributed to the expansion of unsustainable social inequalities that slowly led to economic slowdown and political instability across Europe (Hobsbawm, 1962). Responses to overaccumulation of capital and demands for political and social change included the expansion of a mix of voluntary and state initiatives in education (but also in housing, health, etc.) which helped to address some of the existing inequalities and eventually contributed to overcome the productivity crisis.

In Britain, child labour and the lack of funding put pressure on the existing charity schools (Carpentier, 2003; Sanderson, 1999) with a significant long term social and economic cost and it is

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noticeable that the economic downturn coincided with the vote of the first annual central grant to elementary schools in 1833. The grant provided regular public funding to existing voluntary schools which were, until then, funded by donations and fees. That same year, the Parliament voted the Factory Act that banned child labor. Private attempts to recycle abundant capital for future profit included donations to schools as well as traditional universities and contributions to the vocational orientated mechanics' institutes (Sanderson, 1972).

Similar countercyclical developments took place in France. The 1833 Loi Guizot made it compulsory for communes of more than 500 people to fund a primary school for boys. Partial gratuity and an obligation for districts to run a teacher training college were also introduced by this law. In 1841, work was banned for children younger than eight. A new legislation in 1851 ensured that children younger than 14 and those between 14 and 16 worked no more than 10 and 12 hours a day, respectively (Heywood, 1998).

These legal and financial educational responses to economic problems and social and political unrest have laid the basis for the development of a public education system (financed by overaccumulated capital) preparing for a longer term qualitative transformation of the productive system. Bringing the children out of the factory and into the classroom will be crucial in developing the next phase of growth in both countries.

The second Kondratiev cycle (1850s-1890s): the long depression and the drive to free and compulsory elementary education

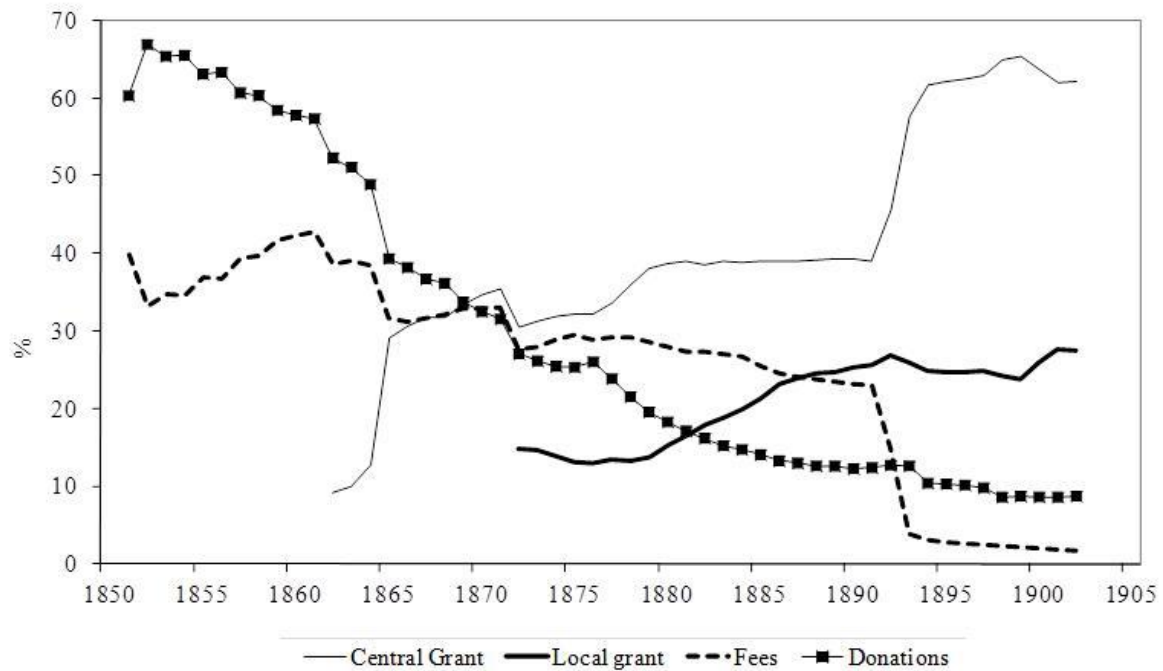
The upturn of the second Kondratiev cycle (1850-1873) was a prosperous phase for both countries, even representing the apogee of British capitalism. However, once profitability was restored, the growth model soon returned to its tendency to favor physical capital over human investment. In Britain, this is symbolized by the introduction of the 1862 revised code, a system of payment by results seeking to increase efficiency through inspection (Aldrich, 2006, p. 60). However, it has been questioned whether this new system led to a slowdown in funding rather than an increase in quality (Marcham, 1981; Morris, 1979; Carpentier, 2003). In France, the return of economic growth also led to a slowdown in public funding despite mixed signals sent by legislative reforms. In 1850, the Loi Falloux proclaimed the freedom of teaching and sought to drive an expansion of religious schools (which could obtain grants from the State). It suppressed the obligation to fund higher elementary schools. However, it obliged every commune of more than 800 people individuals to run a school for girls.

The potential long term social and economic costs of this limited funding effort in funding—during this era of prosperity—were foreseen by some contemporaries. For example, Forster introduced to Parliament his ambitious 1870 Elementary Education Act as a way of countering the catching up by German and US competitors and the potential loss of the British industrial supremacy. However, the economic conditions leading to such change had yet to be met.

It was during the depressive phase of the second Kondratiev (1873-1895), known as the Long Depression, that the conditions to properly resource the implementation of the Forster Act gradually emerged. Figure 3 shows that the major economic and political turbulences following the financial crash of 1873 were contemporaneous with a countercyclical increase of public funding to voluntary schools and new schools established by local authorities in order to fill the gap. Once again, the need to address an overaccumulation of capital combined with a stagnating productivity requires social transformations, including in education.

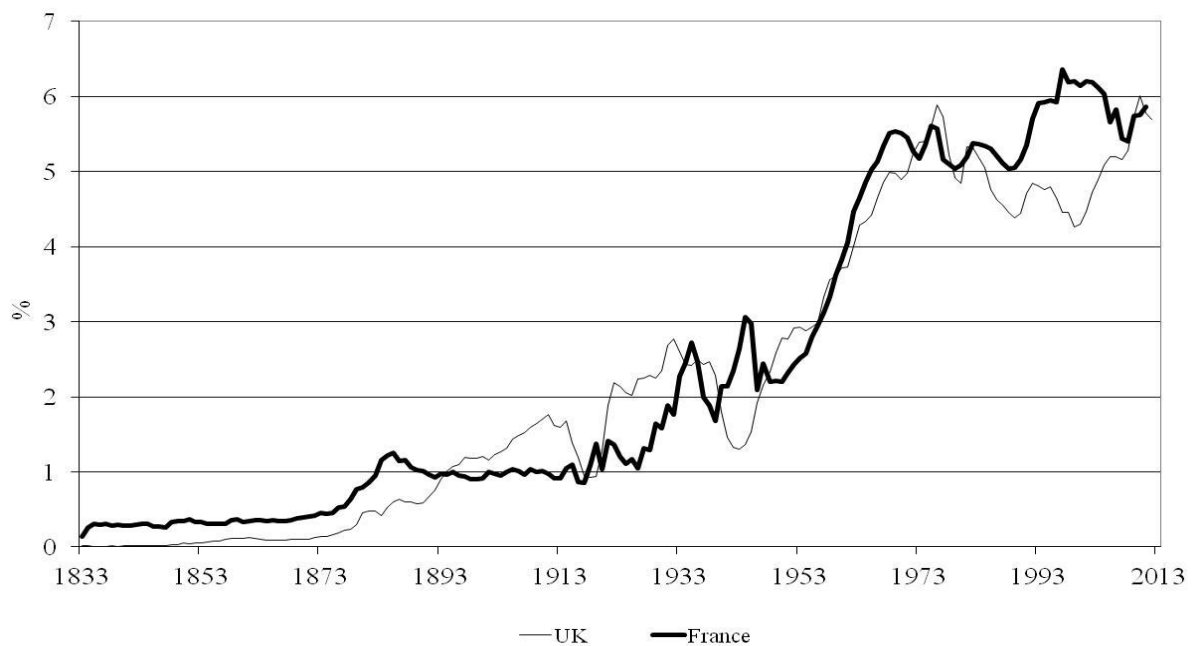
FIGURE 3. INCOME STRUCTURE OF THE STATE AIDED ELEMENTARY SCHOOLS (VOLUNTARY AND STATE SCHOOLS), ENGLAND AND WALES, 1851-1902

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The rise in public funding drove compulsory (1880) and free (1891) elementary education and ensured that children effectively moved from the factory to the school. Countercyclical developments also include the 1889 Technical Instruction Act funded by whiskey money and local taxation. The Long Depression was also a turning point for philanthropy in higher education with the creation of the civic universities. Moreover, many higher education institutions in difficult financial situation benefited from the first annual treasury grant to University colleges, voted in 1889 (Shinn, 1980). Importantly, these trends suggest that countercyclical public funding operated as addition, rather than substitute, for private resources (Carpentier, 2010, 2012).

FIGURE 4. PUBLIC EXPENDITURE ON EDUCATION AS A SHARE OF GDP, 1833-2012



The Long Depression was also a key era for the development of French education (Fontvieille, 1990). In 1874, free schools were instituted and a legislation that bans work for children younger than 12 was introduced. In 1881-1882, the Lois Ferry were a landmark in defining the three principles of the

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republican school, namely free, compulsory and secular primary education (Prost, 1970). French higher education benefited from an increase in state funding from 1875 to 1890 coinciding with the creation of several new universities (Verger, 1984, p. 329). These countercyclical educational developments contributed to the dynamics of the second phase of industrialization that was about to unfold in the next cycle.

The third Kondratiev cycle 1890s-1940s: the Great depression and the shift beyond elementary education

The strength of the economic upturn of the third Kondratiev cycle (1895-1914) has been much debated (Solomou, 1987). These debates focused on the ways in which the UK emerged from the Long Depression and the impact on its relatively unsuccessful transition towards the second industrial revolution compared to competitors such as the USA and Germany. Some authors have blamed the lack of investment in education (Carpentier, 2003; Sanderson, 1999) while others argued that the intrusion of the state destabilized an efficient private market of education and harmed growth (West, 1975). The variations in the degree of countercyclical response to the economic crisis might contribute to explain the differences in the pace of expansion of public educational systems between countries. On the one hand, figure 1 and 4 shows that the countercyclical increase of public funding over the Long Depression led the UK to catch up with the level of financial effort of France and other competing countries. On the other hand, one could argue that the delay in constructing a formal educational system might have been detrimental to the capacity of the UK to adapt to the more sophisticated second industrial revolution of the end of the 19th century (Carpentier, 2006a). This economic interpretation—in conjunction with others such as the idea that the construction of the nation state and social cohesion were more urgent in Germany, the USA and France than in the UK (Green, 1990)—can explain the differentials in development between public educational systems and their impact on the processes of catching up between countries (Carpentier, 2006a). These interpretations challenge the view that the intrusion of the state after the 1870 Education Act harmed the economic position of Britain (West, 1975). On the contrary, they suggest that public education might be considered as a response to the British relative decline rather than its cause (Carpentier, 2003).

Despite differences in rates of growth in the upturn of 1895-1914, the early years of the twentieth century did witness some economic recovery with the indicators of accumulation, price and interest rates back on track. However, the growth regime of the second industrial revolution slowly reverted to the usual preference for physical capital over human capital. The period can be characterized by major structural changes in education in both countries, albeit with a rather timid increase of funding. Figure 4 shows that education expenditure in reference to GDP rose **only** from 1.2% in 1897 to 1.6% in 1913 in the UK and remained stable in France.

On the contrary, figure 1 shows that the economic downturn of the third Kondratiev cycle, which lasted from the powerful 1920-21 crisis to the well documented Great Depression that followed the 1929 crash, did lead to an overall increase of public funding in education (it share of GDP rising from 0.94% to 2.46% in the UK and from 1.38% to 1.88% in France). This was despite the prevalence of an anti public spending discourse and tough fiscal lines expressed in the Geddes Committee 1921 and the 1931 May Report in the UK. Indeed, a closer look at the figures suggests that the impact on funding was not as strong and sustained as suggested by the policy rhetoric. Although, cuts were implemented in education, they only briefly affected the trends of expenditure. Over the whole period, spending remained high with a particularly important expansion of secondary education in both countries (Carpentier, 2006a). In France, the 1919 Loi Astier defined the organisation of technical education. Public involvement in higher education also grew with the creation of the University Grants Committee in the UK. Financial means remain modest but the share of GDP devoted to higher education increased from 0.0611% in 1919 to 0.12% in 1938 in both countries. Still, beyond financial support, the interwar era was clearly a crucial time for the construction of the public administration of higher education and a new structure of funding which will prepare for future expansion.

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Thus, overall, the interwar years were contemporaneous with an increase in the level of educational funding combined with a change of its structure. Countercyclical public funding contributed to the consolidation of the elementary school system and significant increases in spending at secondary and higher education levels. With the powerful social, cultural and political changes provoked by the great depression and the Second World War, the stage was set for the substantial transformations revealed by the transition to procyclical growth of public educational systems after 1945. The next section aims to interpret the origins and consequences of this synchronization between the fluctuations of the economy and those of the public expenditure on education.

3. THE 4TH KONDRATIEV CYCLE (1950S-?) THE REVERSAL OF THE LINK BETWEEN EDUCATION AND THE ECONOMY AND THE TRANSFORMED RELATIONSHIP BETWEEN CRISIS AND AUSTERITY:

Figure 2 reveals that, unlike its predecessors, the 4th Kondratiev cycle recorded high rates of growth of public funding in education during the economic upturn (1945-1973) and slower rates of growth during the economic downturn (1973-?). This shift from a countercyclical to procyclical trends in public funding in education is interpreted as part of a broader transformation of the relationship between economic and human developments after the Second World War. A new productivity regime—depending on the expansion rather than the control of the public social sphere—was established. This regime entered a crisis stage after the economic downturn of the mid 1970s that revived the tensions between educational and economic systems that are ongoing.

3.1 THE PROCYCLICAL EXPANSION OF EDUCATIONAL SYSTEMS AS A DRIVER OF THE POST WAR GROWTH REGIME (1945-1973)

The procyclical expansion of public funding in education (and other social activities) during the economic upturn of the 4th Kondratiev cycle (1945-1973) led to the assumption that education became a driver of growth rather than a corrector of crisis. This represented a dramatic departure from the productivity model born out of the first industrial revolution in the sense that growth became driven by the qualitative development of productive forces rather than the reduction of their cost. At the heart of this historical shift is the idea that the cumulative quantitative changes that operated during the preceding crises have produced a qualitative transformation of the system (Michel, 1999). This major change was facilitated by the intense shocks of the great depression which showed the limit of the market economy (Keynes, 1936) and the market society (Polanyi, 1944) and the necessity for state intervention to correct them. The impact of the great depression combined with the changes in attitudes regarding solidarity (Lowe, 1993) and a higher acceptance of taxation (Peacock and Wiseman, 1994) provoked by the Second World War created a socio-economic context favorable to the development of a new regime of production based on a fairer redistribution of wealth. This postwar fordist regime ensured a virtuous circle between mass production and consumption (Boyer and Saillard, 2002; Jessop and Sum, 2006). In this model, productivity gains were translated into redistributive wage policies and public funded investment in productive social spending that, in return, increased productivity levels. For once, overaccumulation of capital seemed to be under control and productivity and consumption in fine tune.

The fordist regime has been contemporaneous with a significant expansion of educational systems after the war. Education played a key part in this new regime by contributing to the joint interests of the Keynesian consensus on public spending and the agenda of the knowledge economy. The consensus drove the increase of public expenditure on education sustained the gradual implementation of reforms conceived during the Second World War such as the 1944 British Education Act and French plan Langevin-Wallon, which draw the basis of the generalization of secondary education (Lowe, 1992). The procyclical expenditure drove the development of comprehensive education in England and the creation of the college unique in France in the 1960s. The major expansion of higher education systems that started in the mid 1960s was also driven by increasing state funding to institutions and student financial support in both countries (Carpentier, 2006b, 2012). Increased funding, rising participation rates and improved student/staff ratios characterized this period. However, the idea of a golden age should be taken cautiously. While the

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opportunities to study in higher education improved overall, some barriers remained, contributing to unequal access according to social, class, ethnicity and gender (Bourdieu and Passeron, 1964; Reay, David and Ball, 2005).

Overall, the procyclical growth of the public investment in productive social spending, such as education, was part of a conscious strategy of growth rather than a corrective mechanism aimed at overcoming crises, as was the case during previous cycles. However, the belief that wealth and welfare had been reconciled and that an inclusive economic growth coincided or, indeed, was driven by a relative reduction inequalities was going to be heavily challenged by the economic storm of 1973 and the neoliberal policies that followed .

3.2 THE POST 1970S DOWNTURN AND THE PRESSURE ON THE PUBLIC SPHERE AND EDUCATION (1973-?)

The virtuous circle between growth and public funding in education was broken by the downturn of the 1970s characterized by the apparition of stagflation. This unusual combination of economic stagnation and inflation was interpreted by the opponents of Keynesian policies as the result of unsustainable wages and public spending policies. In complete opposition to the mechanisms adopted to overcome the crises of previous cycles, the neoliberal response to the 1970s downturn was based on the idea that limitation of taxation and public spending would revive growth and employment. This time, the attempts to divert the overaccumulated capital and restore profitability did not drive the expansion of the social sphere, but rather found other channels—the financial system and new markets created by the deregulation of public services.

It is important to note that these new trends have not been created but accelerated by the contemporary form of globalization and its influence on deregulation. Although the international mobility of capital also contributed to reduce overaccumulation during previous crises, such as the 1870s and the 1930s, the transnational financialization of the economy has been much stronger under the latest phase of globalization, which started in the 1980s. This has favoured the export of underused capital rather than its use for the development of the social sphere at the national level. A second key change is that domestic and international pressure for lower taxation combined with the adoption of new national and global common practices, such as the GATTs, which have driven a commodification of the social sphere (Robertson, 2003). This led to a reduction of public funding towards these services that became new markets and new sources of profits for underused capital. As a result, most social activities record a slowdown of their public funding and witnessed the re-emergence of private resources and providers.

These transformations produced two main patterns in education, which are well advanced in the UK and emerging in France. The first development is the introduction of competition and choice and a growing space given to private funding or (and) providers within the compulsory education sector (Ball, 2007; Van Zanten, 2005). The second aspect is the emergence in the UK of cost-sharing policy in higher education (Johnstone, 2004), which introduced loans and an increase of tuition fees and combined with the emergence of new private and global providers (BIS, 2011; Carpentier, 2012).

These policies have strongly impacted on the trends in public funding since the mid 1970s. Figure 4 shows that, despite a renewed public effort to fund education from New Labour, UK investment, as a share of GDP, remains below the pre-1970s levels. Thus, the revival of public funding that took place after 1997 can be seen only as a countermovement to the previous slowdown which seems to be jeopardized by the reemergence of austerity policies since the 2008 crisis. In France, the effort to fund education in the early 1990s has been weakened by strict budgets from governments in place since 2001 and, as a result, public expenditure, as a share of GDP, remains similar to its 1970s levels. These policies raised questions about the impact of private funding and provision on equity and efficiency and whether they can be considered as substitutive or additional resources capable of raising the overall investment in education necessary to stimulate both the economy and social cohesion (Carpentier, 2012).

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These questions and concerns are not futile in the sense that these trends designate the economic downturn that started in the mid 1970s as unique in the sense that, for the first time, an economic crisis led to a slower growth of public funding in education. This raises questions in relation to the origins of the post 2008 crisis and the potential solutions to it.

4. THE POST 2008 CRISIS: THE BEGINNING OR THE END OF A DOWNTURN? EDUCATION, INEQUALITIES AND GROWTH

These historical changes in the public-private dimension of educational funding are important to consider when looking at the aftermath of the 2008 global economic downturn. The crisis re-uncovered key tensions between the economy and society and inspired radically different ways of seeing the relationship between public funding, wealth and welfare. Associated solutions range from imperative cuts to necessary countercyclical spending. These scenarii have, of course, different implications for education policy. Should we pause and reflect on the impact of the retreat of state funding on education? Should we move faster towards marketization of education by increasing both private funding and provision?

4.1 IS PUBLIC FUNDING PART OF THE PROBLEM OR THE SOLUTION?

Scenario 1 sees public expenditure as the problem behind the crisis. This corresponds to current policy that seems to have shifted most of the responsibility for the 2008 crisis on the state rather than initial market failure. This neoliberal approach has led to previously unimaginable developments, such as the threat of countries defaulting and the current mechanisms systematically conditioning lower states' cost of borrowing on the reduction of deficit. Within this framework, the 2008 crisis stressed the need to complete the unfinished market reforms started in the 1980s, including in education.

Scenario 2 considers that the 2008 crisis brought back to the fore the contested relationship between inequality and the economy (Atkinson and Piketty, 2007; Stiglitz, 2012; Wilkinson and Pickett, 2009). It sees the difference between production and distribution of wealth as a contributing factor in hindering growth leading Krugman to argue that "distribution deserves to be treated as an issue as important as growth" (2008, p.33). Using that lens, the credit crunch can be seen as the consequence of unsustainable levels of private debt (rather than public debt) associated with new financial products that have (alongside cheap imported products) masked increasing levels of inequalities. The following restraint of credit from the banks exposed these inequalities and hampered growth. This interpretation contests the priority given to the sole reduction of deficit (to the exclusion of any other indicators) and the idea that policies aimed at reducing the deficit focus on the control (rather than efficiency) of public spending, rather than fairer taxation. Within this approach, the global economic downturn that started in 2008 might be an opportunity to address the disconnect between wealth production and redistribution and to revive public investment towards human development in order to address social issues, political unrest and raise productivity levels.

4.2 2008: THE BEGINNING OR THE END OF A DOWNTURN?

The lens of the Kondratiev cycle opens the possibility to consider the 2008 crisis either as the start of a new downturn or the continuation of the one started in the 1970s. For some, the return of growth in the 1990s—which coincided with the expansion of globalization, the development of new information technologies and the take off of new emerging countries, such as India, China and more recently Brazil—represented the end of the 1970s downturn and the beginning of the upturn of a 5th Kondratiev cycle. The 2008 crisis would therefore signify the beginning of the downturn of this 5th Kondratiev cycle.

Others have questioned the viability of the recovery from the 1980s crisis and argued that indicators, such as productivity levels and profitability, suggest that the economic downturn of the 4th Kondratiev is still unfolding (for a comprehensive discussion, see Bosserelle, 2010). The 2008 crisis would not represent the end of the boom of the 1990s but the deepening of (or possibly a conclusion to) the structural economic downturn of the 1970s. The contemporary crisis suggests that the neoliberal response to the 1970s downturn was not efficient and that the increasing levels of private debts and the reliance on cheap import from emergent countries could not sustain an increasingly unequal

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dynamic of growth indefinitely. The slowdown of the funding of the social sphere identified above can be linked to historical trends and patterns that reveal growing tensions between wealth and welfare over the last three decades. The resurgence of inequalities from the 1980s is marked by the degradation of the Gini index and increasingly diverging trends between economic and social indicators (Carpentier and Michel, 2010; Gadrey and Jany-Catrice, 2007; Michel and Vallade, 2008).

FIGURE 5 PUBLIC SPENDING (PS), EDUCATION AND SOCIO-ECONOMIC INDICATORS IN FRANCE, 1918-2008

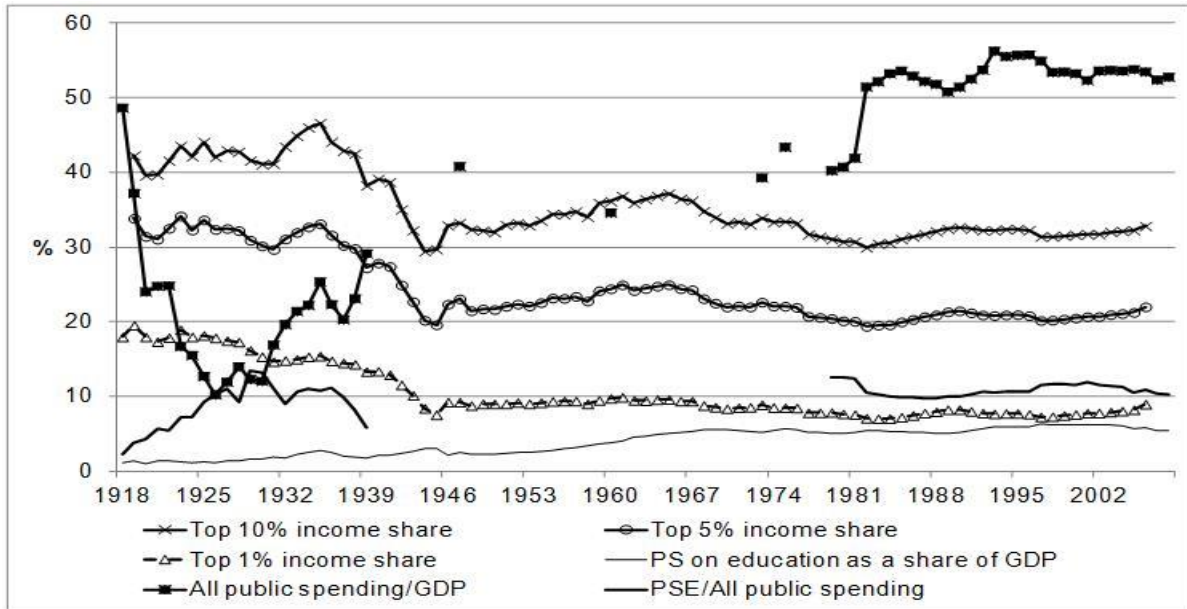
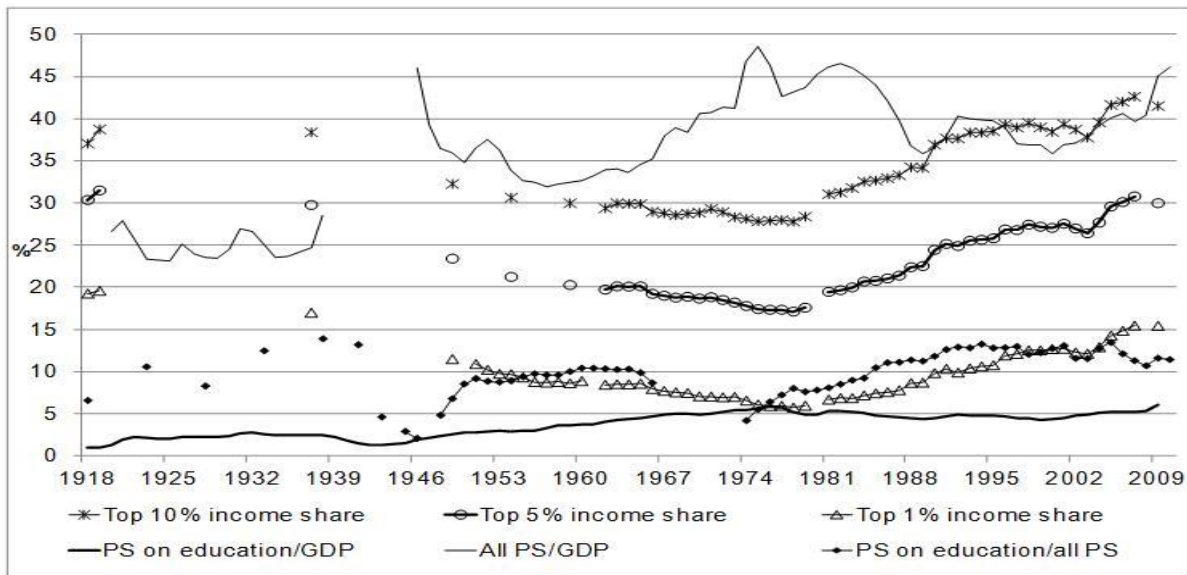


FIGURE 6 PUBLIC SPENDING (PS), EDUCATION AND SOCIO-ECONOMIC INDICATORS IN THE UK, 1918-2008



Sources: On income: The World Top Incomes Database. Alvaredo, F., Atkinson, T., Piketty, T and Saez, E. <http://g-mond.parisschoolofeconomics.eu/topincomes/>. Other indicators: Carpentier (2007) updated.

Graphs represented in Figure 5 and 6 show that another key element to consider is the correlation between lower public spending and the increase of the GDP owned by top income earners since the early 1980s, especially in the UK (Atkinson and Piketty, 2007), suggesting that the growing inequalities in income were not mitigated by taxation policies.

The long term view offers a different perspective on the contemporary discourses, practices, policies of austerity associated to scenario 1 and questions whether they could have been responsible for the

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absence of a resolution of the structural crisis since the 1970s. Looking at the past might lead to consider a shift to countercyclical policies associated to scenario 2.

It has been shown above that during previous crises, the dynamics of the economy was revived by the development of a social infrastructure whose logic was not characterized by profit but by the use of an excess of capital in order to develop new sources of productivity. Since the 1970s, in the context of stagflation, neoliberal policies represented new strategies aimed at overcoming this kind of crisis by reducing taxation and switching back the regulation of the social infrastructure of human development to a capitalist form. The tensions between these two forms of regulation have yet to be resolved. Within such interpretation, the 2008 crisis might be seen as an opportunity to pause and reflect on the tensions between economic growth and inequalities since the 1980s and to think about the possibility of bringing back some collective (not necessary state) forms of social spending in order to address the tensions between wealth and welfare. This shift is prompted by concerns on whether the marketization of the social sphere can resolve the overaccumulation of capital and continue to drive productivity while taking on board the wider aims of education.

4.3 A RETURN TO COUNTERCYCLICAL EDUCATION?

Educational systems have recently experienced increasing tensions between public funding and enrolment. The risk is that the austerity policies in the post 2008 era, which are aimed at increasing competition with reduced public funding, could lead to a heavily polarized system of compulsory education and reinforce existing inequalities. Currently, choice is constrained and especially in time of austerity, only the best informed people will be able to navigate such system (Ball, 2013; Whitty, Power and Halpin, 1998). As far as higher education is concerned, there is a danger that cost sharing could be turned into a public/private substitution, which would lead to a transfer rather than an increase of resources with strong implications for equity (Carpentier, 2010, 2012).

Thus, there is a risk that the intensification of austerity policies in education following the 2008 crisis could further increase existing social inequalities and compromise the chance of economic recovery. Such tensions have been explored by Goldin and Katz in their historical analysis of the links between education, technology, inequality and growth in the USA (Goldin and Katz, 2008). The authors found that the historical steady and relatively egalitarian supply of education has allowed the USA to generate growth. However, they show that the setback in educational attainment since the 1980s explains the reemergence of inequalities, prompting growing concerns about the long term capacity of the US economy to grow and compete internationally. These trends on declining attainment and the increasing privatisation and its impact on the erosion of a public good (Cohen, 2011) seem to correlate with the Kondratiev fluctuations of public expenditure on education observed in the USA (Carpentier, 2006a) which mirror those of the UK and France explored in this paper.

These developments point at the shortcomings of the austerity policies that have been implemented since the 1970s. The analysis of the mechanisms that led to overcoming previous crises offers alternatives to current policy by making an historical case for a countercyclical policy that would reconcile political, social and economic rationales of education. This requires tackling the question of the public deficit differently, by considering not only the question of the efficiency of public spending but also the development of fairer taxation systems. A countercyclical policy founded on these principles would ensure that the agenda of austerity does not compromise those of economic growth and equity (Carpentier, 2009, 2012).

CONCLUSION

The historical perspective indicates that the relationship between education and economic crisis is not as straightforward as we might think today. It shows that the successive phases of development of state education were responses rather than causes of the economic downturns that punctuated the development of the capitalist economy. Past crises have been provoked by tensions between wealth and welfare, which eventually led to an increase in social inequalities, political unrests and a decline of levels of productivity. The recoveries from economic crises prior to the Second World War were

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the results of transformations of the socioeconomic system, which included the transfer through taxation of unused capital to develop the activities of human development to revive growth. This included a renewed effort to fund public educational systems in order to respond to socioeconomic and technological innovations. The policy response to the crisis of the 1970s was very different in the sense that it channeled the unused capital to the financial sector rather than the public sphere and pursued an agenda of lower taxation combined with a marketization of social sectors, including education systems. The crisis that unfolded in 2008 might be the reminder that those remedies have backfired. They increased the tensions between wealth and welfare and, as a result, failed to address the productivity challenge and exacerbated the political and social issues. The post 2008 crisis, therefore, could be considered as a potential end of the 1970s downturn, whereby the necessary structural transformations to rebalance wealth and welfare are about to take place, as they did during the previous downturns in the 1830s, 1870s and 1930s. In that sense, countercyclical public spending on education and other areas related to human development might contribute to jointly address social inequalities and revive economic performance.

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