



Universidad de
SanAndrés

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Departamento de Economía

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Income distribution expectations and macroeconomic crisis: the U.S. and
Greece¹

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**Income distribution expectations and macroeconomic crisis:
the U.S. and Greece**



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I. Introduction

Since the burst of the housing bubble and the start of the global financial crisis, excessive household indebtedness has been pointed out as one of the origins of the problem (see for example, *IMF World Economic Outlook (2012), c.3 and references*). Thereafter, analysis has shifted to looking for an adequate explanation for what led to such indebtedness. In this, the role of the distribution of income has been central. In other words, the attention in the current days has been driven to ask: is there a causal relationship between income inequality and the occurrence of a financial crisis? Or are they merely coincidental events that have happened to occur in this last crisis, as well as in the Great Depression of the 1930's? (Bordo (2011))

However, whilst distributive deterioration in the U.S. has been widely documented, as has the widespread increase in income inequality in the developed world, the counterexample remains unstudied. Have there been no economies among the developed countries that are in crisis today, that have experienced an *improvement* in their income distribution? That is, arguments that relate income inequality and macroeconomic crisis have concentrated in the evidence from the U.S. However, can they be generalized to other cases, as to Europe in particular? Could not have changes in income distribution played a role in their crisis as well?

Given this motivation, this work does the following: it studies the evidence from the distributional changes in the United States and that from a European country, Greece. That is, instead of searching for a parallelism to validate the hypothesis that worsening income inequality doubtlessly leads to crisis, it presents the opposite: a case in which income distribution *improved* during the boom years prior to the crisis. Hence, it finds a counterexample to the association that has been made between shifts in income distribution and large macro fluctuations: two cases which experienced changes in income inequality in opposite directions but ended up in crisis either way. It then briefly analysis the role the distributive change has played in each crisis. Was it, for any of the two economies, a sufficient condition for the occurrence of a crisis?

Two arguments are generally used when trying to establish this causation: one, that increasing income inequality raised households' demand for credit, in turn made available by the political pressures that stagnating incomes generated, resulting in deterioration of credit standards that inevitably led to crisis (*Raghuram Rajan (2010)*). Second, that deterioration in income distribution has resulted in a crisis of under consumption. The hypothesis of the *underconsumptionists* is based

on the notion that there is an inherent contradiction in the capitalist economy, as the working classes cannot afford to consume the surplus value of their production, i.e. the value of the goods produced above the remuneration they receive, and the capitalist use this surplus value for capital formation. The unawareness of this contradiction leads the economy to a crisis of overproduction. Hence, arguments on this line today point to the fact that a recession in the face of worsening income distribution was to be expected, as income gains during the expansion had shifted from groups of individuals with larger to lower propensities to consume.^{2 3} So what were the individual expectations at the time? How was such an overprovision of debt made possible if, in the presence of falling real incomes of many of its debtors, it would so clearly become unaffordable? In other words, why was credit willingly oversupplied and willingly over demanded?

This paper is organized as follows: section II deals with the evidence for the worsening distributive boom in the United States. In section III analysis the case of Greece. Section IV briefly describes both crises. Section V relates each one of them to the corresponding descriptions made in the previous two sections and concludes.

II. Distributional changes in the United States

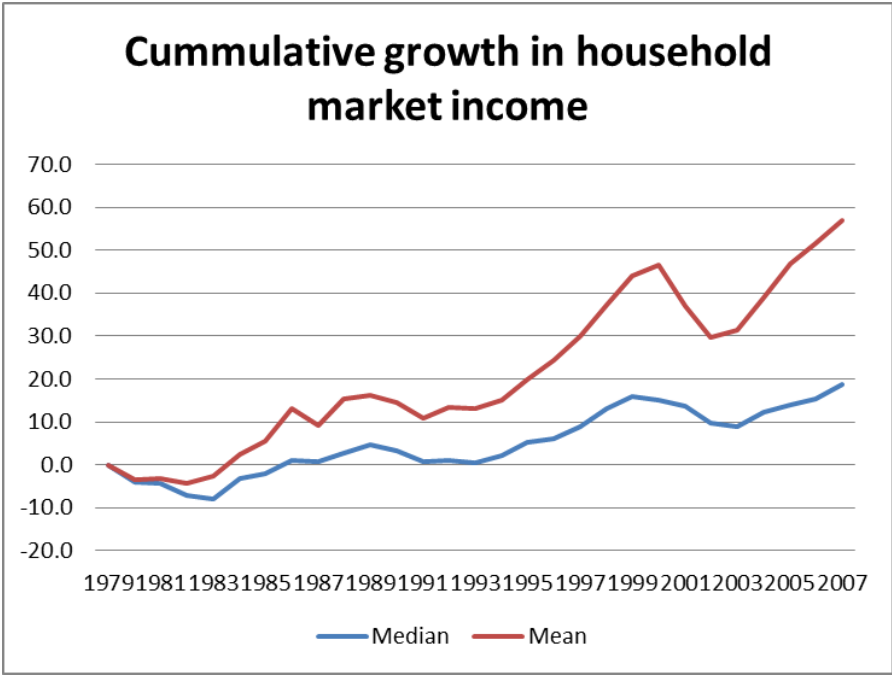
Between 2002 and 2007, the United States experienced a strong economic boom. Both income and consumption rose significantly: real gross domestic product, real disposable income and real personal consumption all grew at average annual rates of 2.74, 2.7 and 2.4 percent respectively. Personal saving rate dropped monotonically throughout the decade to zero. Unemployment remained low at an average of 5 percent. Total public debt remained well below 60 percent of GDP. The business cycle was believed to have changed: since mid-1980, real GDP growth, industrial production, inflation and unemployment rate began to decline in volatility. The causes were attributed to factors like better management of inventories, absence of strong shocks and hence good luck, and better management of monetary policy (*Blanchard (2001), Bernanke (2004)*).

However, aggregate data of this sort does not describe the underlying reality faced by most of its population. The literature provides ample evidence of the striking growing inequality that has

² See Robert Reich, 2008, "Are we heading toward depression (part 3)?", <http://robertreich.org/post/257309410>

³ It is important to note that Marx's theory of overproduction did not consider the possibility of indebtedness of the working class that would allow them to smooth the decline in consumption. Today's theories of underconsumption have to take into account the credit market and its fragilities,

taken place in the United States (see *Piketty and Saez (2003)*, *U.S Census Bureau Studies (2006)*, *Congressional Budget Office Report (2011)*). The U.S is the country with the highest inequality level and poverty rate in the OECD excluding only Mexico, Turkey and Chile. Since 2000, income inequality has increased rapidly, continuing a longer-term trend that goes back to the 1970's, as evidenced by different inequality indicators. Its Gini coefficient household market income (before transfers and taxes) rose 23 percent between 1979 and 2007, from 0.470 to 0.590; similarly, mean household income grew almost 60 percent whereas median income barely rose by 18 percent throughout the same period of time.

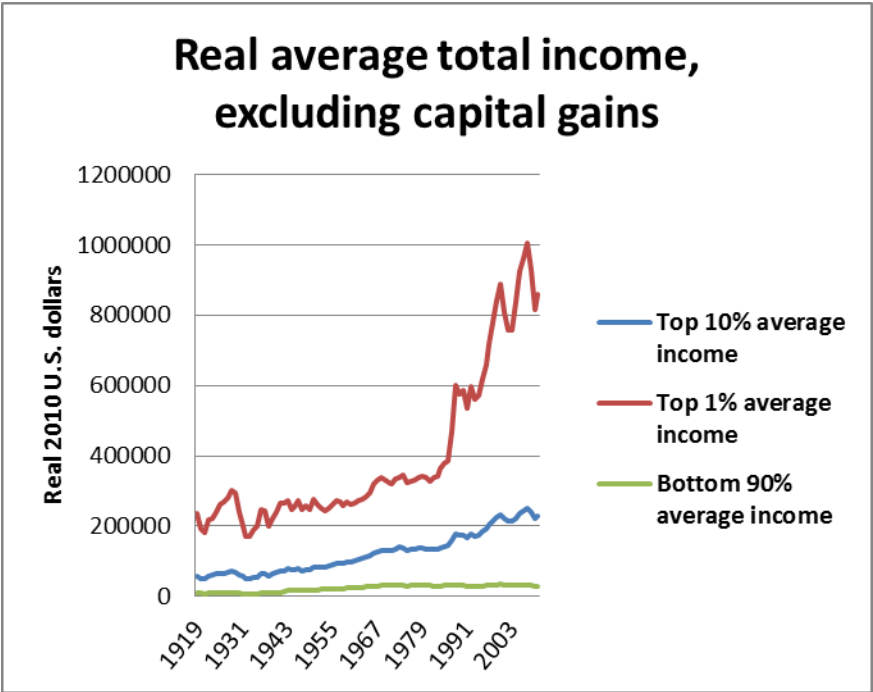


Source: U.S Congressional Budget Office

Additional microeconomic evidence points in the same direction: in 2004, 20 percent of families interviewed by the Survey of Consumers Finances reported they had found their income of the previous year unusually low; in 2007, 31.4 percent reported they did not have a good idea of how much would their income be the following year. Likewise, by the same year, 6.2 million students between 16 and 24 years old were dropping out of high school, a worrying phenomenon which can be observed throughout the entire expansion.⁴

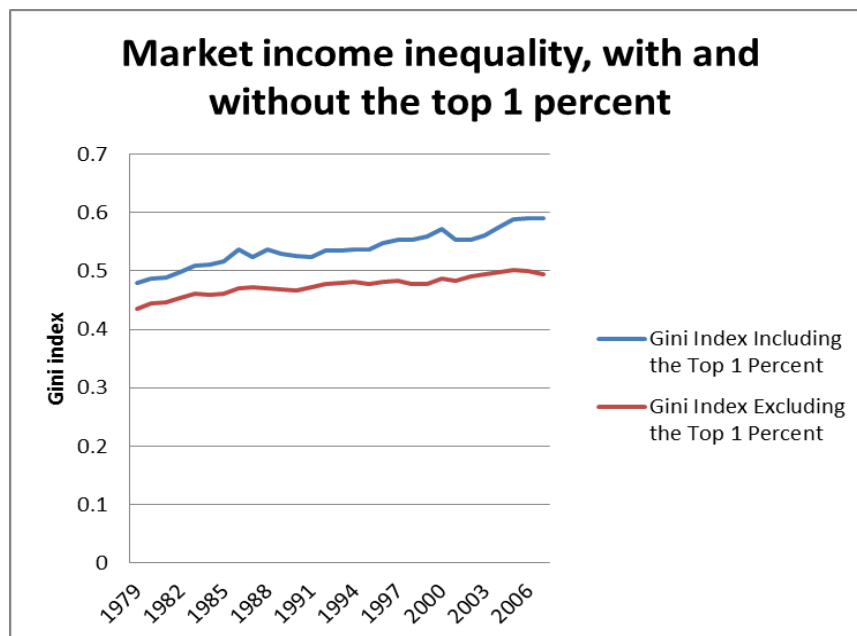
⁴ “Left behind in America: the Nation’s dropout crisis”, Center for Labor Market Studies, Northeastern University (2009)

Growing inequality can be made even more visible by disaggregation of the top of the income distribution. As estimated by Piketty and Saez (2007), two thirds of the income gains of this expansion accrued to the top 1 percent of the income distribution, which experienced an increase of 62 percent in its average real income, in contrast to the 4 percent increase received by the bottom 90 percent.



Source: The World Top Income Database.

Consequently, the share of total income gained by the top 1 percent climbed to 18 percent in 2007, its highest peak ever since 1929. In fact, excluding the top 1 percent, the estimated rise in the Gini coefficient throughout the past thirty years falls to 14 percent, from 0.435 to 0.490.



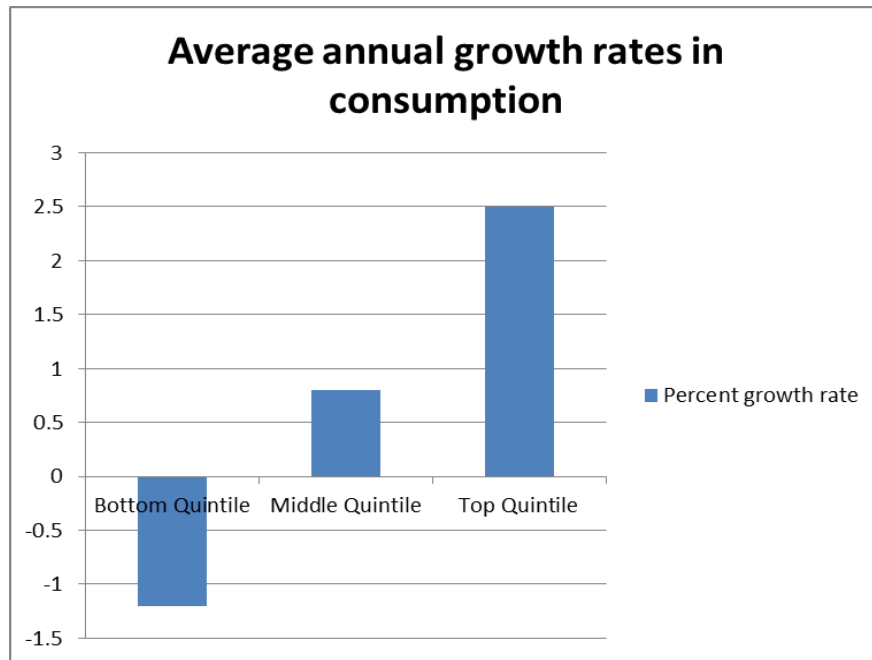
Source: U.S Congressional Budget Office

As a consequence, nowhere has the trend of rich people leaving behind the middle and low income groups, as evidenced in most of the developed countries, been so stark as in the United States.⁵

Despite being the continuation of a longer term trend, the last economic expansion is remarkable in two aspects. First, it accelerated the increase in income inequality: whilst income for the top 10 percent grew five times faster than that of the bottom 90 percent throughout the nineties, during the years under analysis it grew ten times faster (see Figure 2). Similarly, whilst it grew about 1 percent per year between 1991 and 2000, it increased at an annual rate of 2 percent from 2002 to 2007. Second, during this period and different to what was seen in the previous decades, consumption expenditure started to grow more unequal as well: real personal consumption expenditure by the bottom deciles fell throughout the expansion, whilst consumption by the top deciles was robust. Even growth in the consumption expenditures of the middle class was lower than historical standards. That is, *even though the zero saving rate suggests that this is not a crisis*

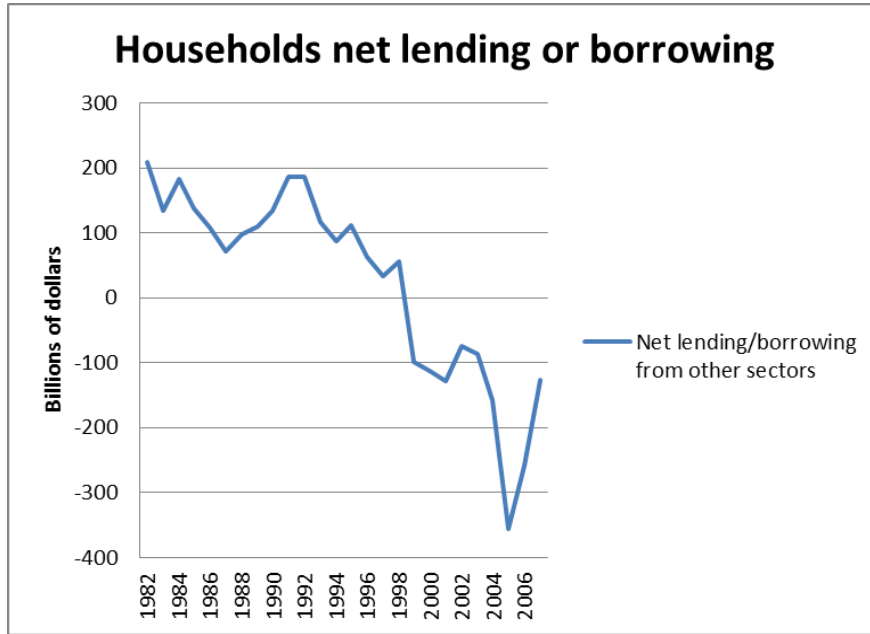
⁵ For evidence on global income inequality changes, see OECD Are we growing unequal? (2008).

of underconsumption, decomposition of consumption expenditures by income group tells a much more informative story.



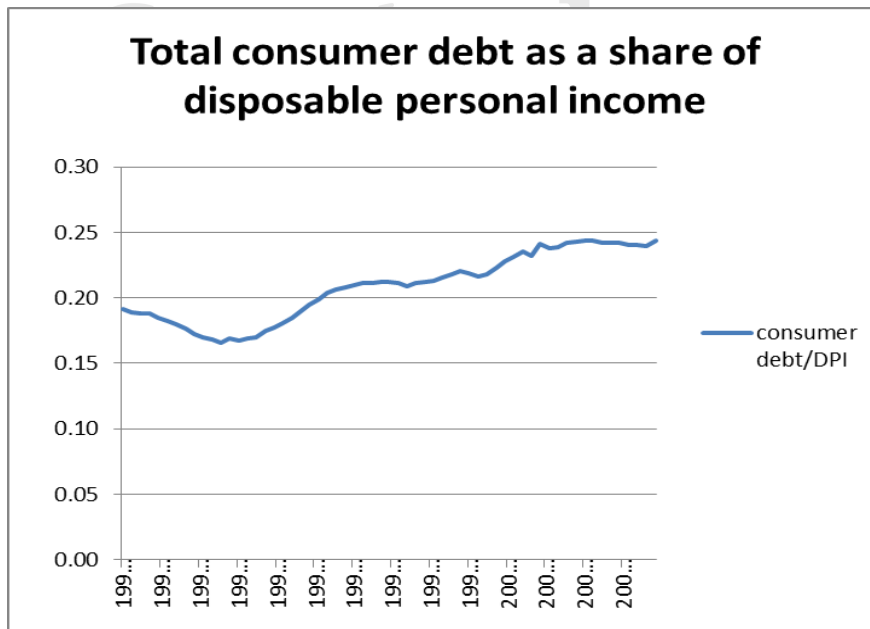
Source: Consumer Expenditure Survey, Bureau of Economic Analysis

In addition, detailed analysis of longer term changes in the composition of personal expenditure speaks even further. In the first place, the personal saving rate has been decreasing ever since 1985; as shown in the integrated macroeconomic accounts of the United States, households were net lenders to other sectors until 1998, but beginning in 1999 they became net borrowers, with net borrowing reaching a peak of \$372 billion in 2005.



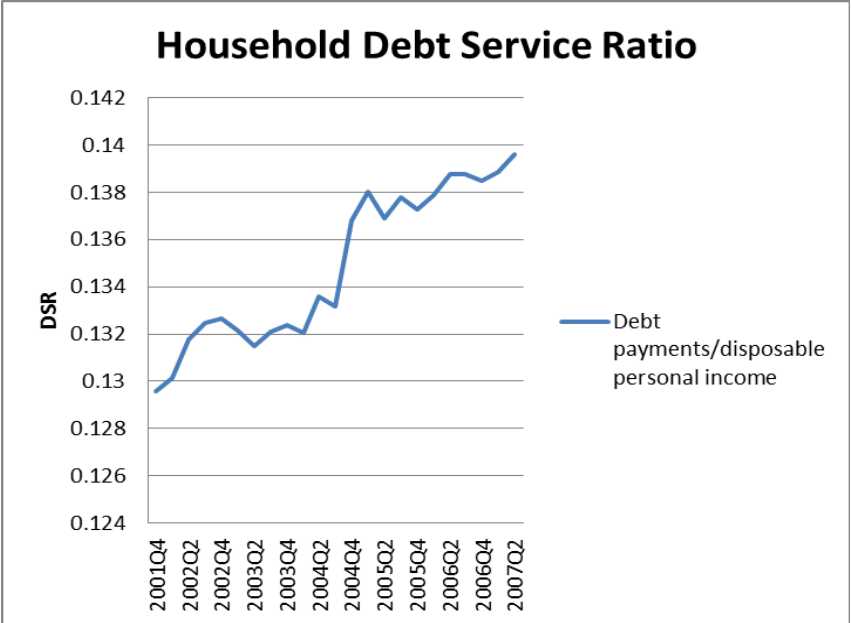
Source: Bureau of Economic Analysis

Dissaving expressed itself in the form of higher indebtedness. Consumer debt as a share of disposable income was 50 percent larger in 2005 than what it had been a decade earlier. However, when combined with the evidence of the decomposition of consumption patterns by income group, data suggests that debt was not enough to prompt up the standard of living of the low and middle classes.



Source: Federal Reserve of St Louis

Second, the growth rate in real personal consumption expenditure mentioned at the beginning of this section has actually been much lower than that of the previous decades, in which annual growth rate in consumption expenditures stood near 3.5 percent. The slowdown in consumption expansion can partly be attributed to the falling real disposable income growth, and partly to rising debt service payments, which are not considered in the PCE calculations and grew by an accumulated 40 percent throughout the expansion, peaking at 14 percent in 2007 as a share of disposable income.



Source: The Federal Reserve Board

Third, there has been a dramatic change in the composition of personal expenditures, for the fraction of consumption devoted to services has increased 22 percentage points relative to the expenditure in goods ever since the 1960's. The increase in this share has been mainly driven by a rising proportion of total spending in health care and financial services and insurance; therefore, the rising PCE observed during the last decades can be largely attributed to rising consumption in these two sectors. However, health care expenditures, though counted as personal consumption expenditure, have increasingly been funded by the government and employers, and so most of its rise does not represent out-of-pocket expenditures. Consequently, by the end of the last economic expansion, households were actually choosing to spend a greater proportion of their income in mutual fund commissions, banking and credit card fees, portfolio management and investment advisory fees, than what they were allocating to food and beverages, or to clothing, energy and

transportation services put together. That is, *accounted growth in aggregate consumption expenditures and hence fall in personal saving rate was mainly impulse by increasing expenditures associated with investments meant to generate financial gains.*

Table 1.

Goods and Services	Share of 1959 PCE (percent)	Share of 2009 PCE (percent)
Goods	54.30	32.30
Durable goods	14.10	10.30
Non durable goods	40.20	22.00
Food and beverages	19.40	7.80
Clothing and footwear	8.00	3.20
Gasoline and other energy	4.80	3.00
Other nondurable goods	8.00	8.00
Services	45.70	67.70
Health Care	4.70	16.20
Transportation	2.70	2.90
Recreation	1.90	3.80
Financial services and insurance	3.90	8.10
Financial services furnished without payment (imputed)	1.10	2.70
Commercial banks and other depository institutions	1.10	1.40
Regulated investment companies (mutual funds)	0.02	0.90
Pension funds	0.02	0.40
Financial service direct charges	0.70	2.30
Financial service charges and fees	0.20	1.00
Securities comissions	0.40	0.40
Portfolio management, investment advice services, and trust, fiduciary and custody activities	0.10	1.00
Insurance	2.20	3.10
Medical care	0.20	1.40
Other insurance	1.90	1.70
Other services	32.4	36.7

Source: Bureau of Economic Analysis

Note: Furnished without payment means without explicit charge; these services are measured by their expenses, largely portfolio management fees. Financial service charges and fees include bank and other depository institution fees, and credit card fees.

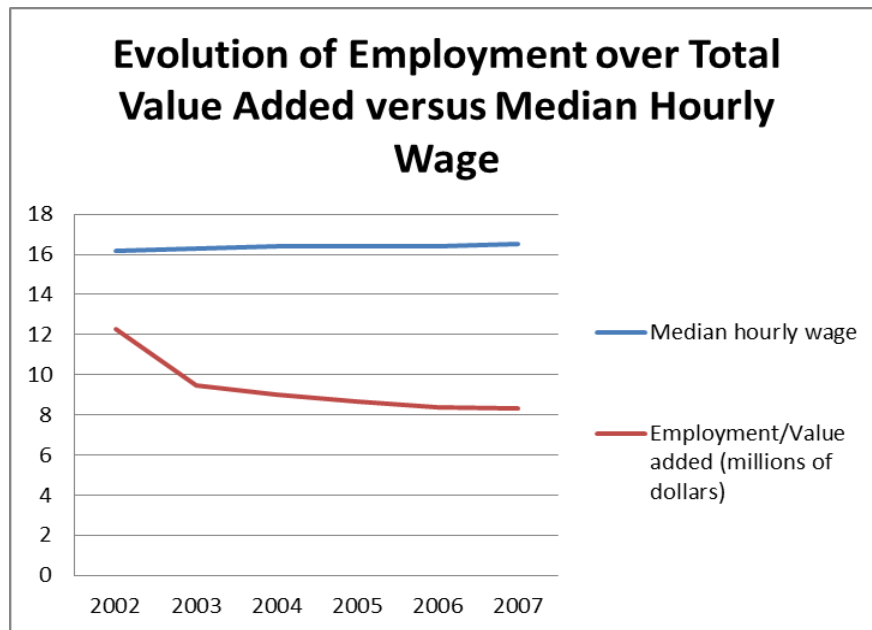
Household debt reached soaring levels: mortgage liabilities as a percentage of nominal disposable income peaked 103.5 percent in 2007, whilst total households' liabilities reached 130 percent of disposable income in the same year, well above the 95 percent they had been at in 2001. The level of household indebtedness as a proportion of income did in fact prove to be much larger for the poorest groups in the income ladder, indicating that income inequality and household debt have *indeed* been two sides of the same coin. Aggregate outstanding debt to income ratio increased 60 percent for the bottom quintile of the distribution, while it grew 30 percent for households between the 20th to 90th percentiles and remained fairly constant for the top decile. In the 2007 Survey of Consumers' Finances, 27 percent of the surveyed households that belonged to the

bottom quintile had debt service ratios greater than 40 percent, whereas fewer than 4 percent of the households in the upper decile had so.⁶

The causes of the rising inequality are still very much debated, but most of the evidence explored points to structural changes in the real economy. In the first place, the main reason for the widening income gap, according to the evidence provided by Piketty and Saez (2007), the United States' Congressional Budget Office (2011), and the OECD (2008), can be attributed to increasing disparities in labor income. In other words, the difference between the wage earned by both the top 1 and top 10 percent relative to the wages and salaries earned by the middle and low income classes has been detected as the principal contributor to the increasing income inequality among the American population. In the second place, employment can be detected as having barely been able to recover from the fall after the 2001 recession, with the employment rate as a share of the population aged between 25 and 54 years old rising mildly from 78.75 to 80.1 percent.

In the third place, just as looking at the behavior of aggregate income and consumption data is not at all informative of the microeconomic level of well-being, looking at aggregate unemployment figures does not allow us to describe the underlying changes occurring in the productive sector. At the beginning of the expansion, total employment over gross domestic product was around an average of 12 employees per million dollars of value added; however, while nominal GDP grew about 31 percent during the period, total employment increased by less than 5 percent, which means total employment per value added actually decreased with no counterpart growth in median hourly wage.

⁶ The household debt service ratio (DSR) is an estimate of the ratio of debt payments to disposable personal income as estimated by the Federal Reserve. Debt payments consist of the estimated required payments on outstanding mortgage and consumer debt.



Source: Bureau of Economic Analysis

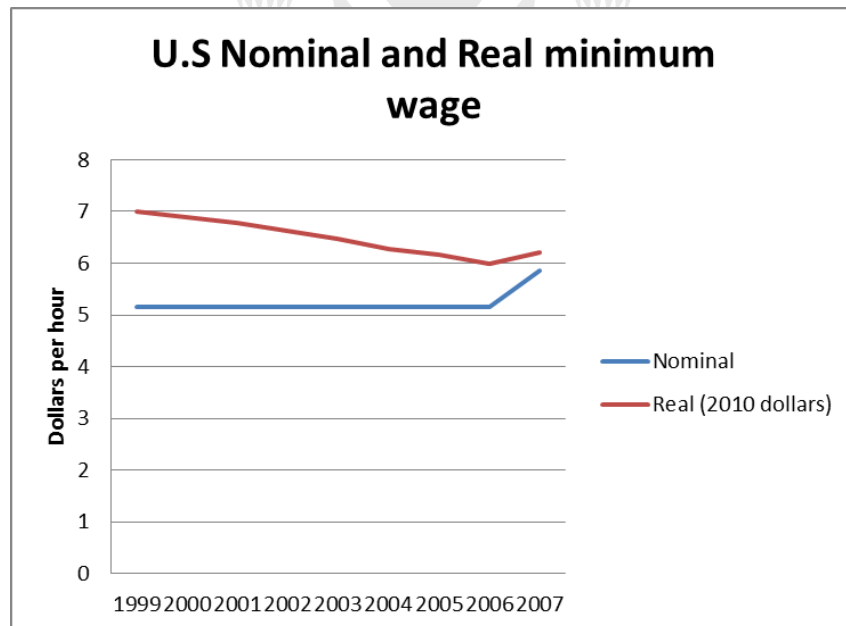
Inequality in rates of growth among the industrial sectors occurred as well: throughout the entire cycle, value added from financial services, insurance and real estate's sector grew a total of 33 percent whereas manufacturing increased barely by 13 percent. This is highly relevant because it means that economic growth has been shifting from sectors with higher capacity of employment generation per value added to sectors with lower employment generation relative to the sectorial economic growth: the employment over value added ratio is about a third in finance and insurance than in the manufacturing industry.

Likewise, wage and salary compensation have been growing much more slowly in sectors which employ a greater share of the total labor force.⁷ In addition, the increase in the educational premium has been remarkable: college premiums (the difference earned between college graduates and high school graduates) have grown substantially in the last decades, exhibiting a 1 percent annual rate of change between 1979 and 2000. In 2005, 55 percent of income earners with doctorate degrees were among the top 15 percent earners; among those with Masters degrees, 50 percent had incomes among the top quintile of the income distribution (see *U.S. Census Bureau (2006)*). However, while the higher education commonly translates into higher income, and the highly educated are disproportionately represented in upper quintile households,

⁷ As an illustration, as estimated by *The Economist*, the number of financial professionals in the top 1 percent has duplicated (see references)

differences in educational attainment fail to explain income discrepancies between the top 1 percent and the rest of the population mentioned earlier.

In addition to changes in the labor market, the State's minor redistributive role cannot be neglected. By 2007, unemployment and family benefits added to an estimated 9 percent of household income, at the same time the OECD average was 22. The equalizing effect of transfers and taxes has decreased since the 1990's, as evidenced by the increased concentration in after-tax income. The composition of federal revenues has shifted from income taxes to less progressive payroll taxes, transfers received by the bottom quintile have fallen significantly, and tax exemptions were granted for the richest. Nominal minimum wage remained unchanged, and hence real minimum wage fell slightly, throughout the years between 2002 and 2006; unionization has been decreasing since the 1980's.



Source: U.S Department of Labor, Bureau of Labor Statistics

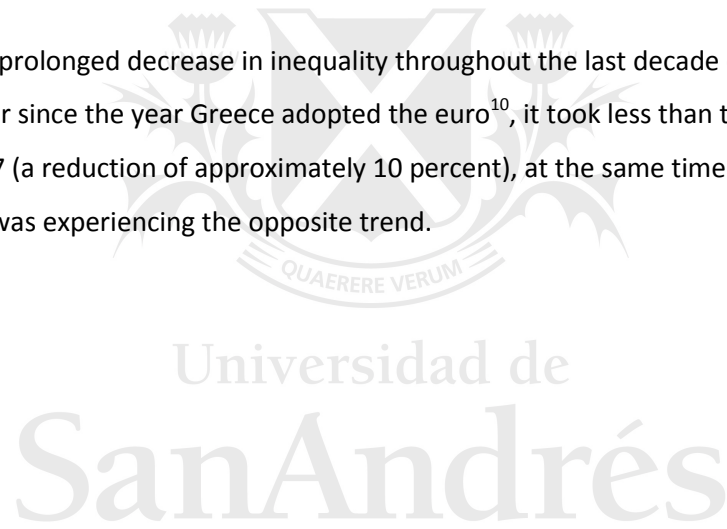
In conclusion, it does become evident that the structural changes accelerated by the characteristics of the last economic boom, and reinforced by the absence of redistribution policies, determined that the high growth rates experienced by the economy during the expansion would not be shared equally by the majority of the income ladder.

III. Distributional changes in Greece.

The economic boom experienced by the Greek society since its admission to the European Monetary Union was quite marked: in the period beginning in 2001 and ending in 2007, a year prior to the onset of the global financial crisis, real gross domestic product and nominal disposable income grew at an average annual rate of 4.24 and 4.4 percent respectively. Real annual personal consumption expenditure grew at an average rate of 4.16 percent. The expansion was expected, at least by the authorities, to be long lasting⁸.

Among the thirty OECD countries, only two of them have experienced a decline in average income inequality since the mid-1990s to the present date; one of them was Greece⁹. Greece's income inequality, traditionally very high, has been declining non-monotonically ever since its return to a democratic regime, in 1974. Its Gini coefficient on disposable income, which was about 0.41 in the seventies, had reached 0.34 by the end of 1990's.

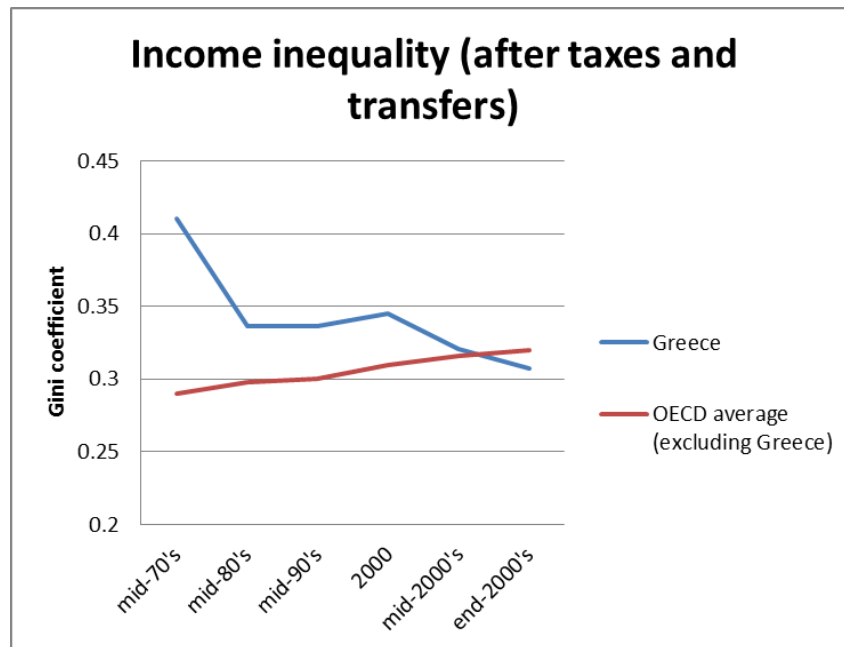
Nevertheless, the prolonged decrease in inequality throughout the last decade deserves a different look. Ever since the year Greece adopted the euro¹⁰, it took less than ten years for its Gini to decline to 0.307 (a reduction of approximately 10 percent), at the same time the majority of the developed world was experiencing the opposite trend.



⁸ See "The Greek Economy and its Outlook", from Speeches at Central Bank of Greece, September 1, 2006

⁹ The other country that improved its income distribution in the recent period was Turkey. When considering a larger period and including the 1980's, Portugal, Spain and Ireland are added to the list of countries that reduced income inequality and poverty among the OECD group. See OECD, *Are we growing unequal?* (2008)

¹⁰ The declining trend had seen itself halted during the previous decade.



Source: OECD

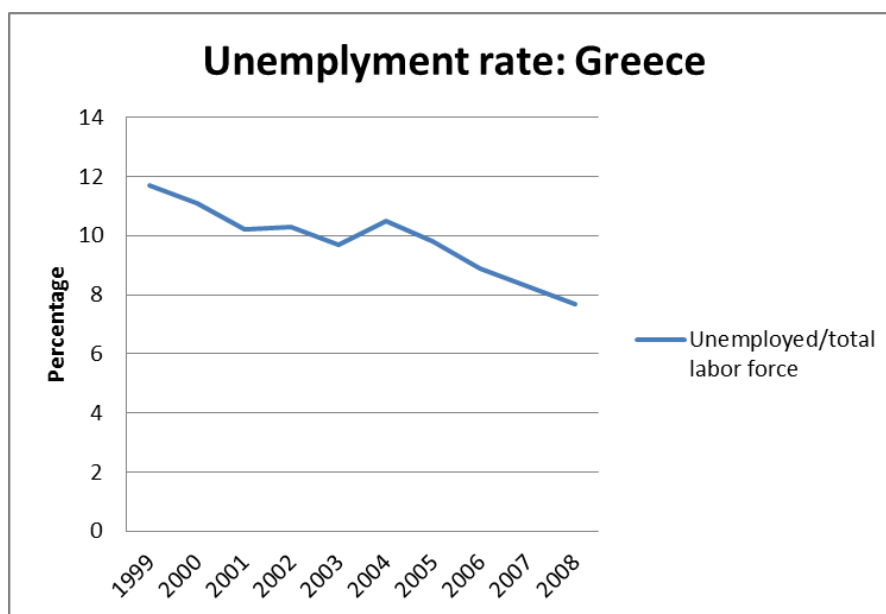
Greece's ratio of average income from the richest 10 percent to the poorest 10 percent dropped from 9.7 in the mid 1990's to 7.4 fifteen years later, at the same time United States' ratio had increased from 12.5 to 15.5. Similarly, between the end of the 1990's and mid 2000's, real income accruing the bottom quintile grew at an average annual rate of change of about 3.6 percent, whilst that of the top quintile by 2.9 percent. That is, contrary to the United States, the share of real income accruing to the top quintile actually *decreased*.¹¹ During the first half of the expansion, the poverty rate decreased markedly, from 8.1 to 7.0 percent; throughout the second half, the falling trend accelerated reaching a 5.3 percent of poverty rate by late 2000's, in contrast to the increasing trend observed in the average for the OECD countries.¹² As a result, different indicators of income inequality for the country in question, which were high above the OECD average by mid-2000, had dropped below the average of the developed world less than five years later.¹³

¹¹ The same trend in income inequality is seen when using other indicators, such as the S80/S20, the SCV and the MLD. Unfortunately, no data for the top 1 percent is yet available, which would be interesting given the fact that in most of the developed world inequality has risen due to the rich improving their income to both the low and middle-income.

¹² Poverty rate is measured as percentage of the population earning less than 40 percent of the median income, after taxes and transfers. Poverty rates increased in most European countries during the first half of the 2000's.

¹³ Additional evidence is provided by Mitrakos et al. from the University of Athens using data of Greece's Households' Budget Survey, the ECHP and the EU-SILC. Inequality both of income and of consumption

The general rise in economic well-being became evident in several aspects. Real domestic demand was growing rapidly, at an annual average rate of 32.6 percent, high above the European average. The current account deficit as a fraction of GDP doubled. Employment as a share of the population aged between 25 and 54 years old rose from 70.4 to 76.6 percent; equivalently, unemployment rate as a share of the labor force decreased monotonically throughout the expansion years, from 10.2 to its lowest peak in decades of 7.7 percent. The percentage of young adults neither in education nor employment fell by about 26 percent. Child mortality rate fell from 5.1 in 2002 to 2.7 in 2008.



Source: Eurostat

Growth in consumption was also made possible by an increase in the supply of credit: the volume of bank loans to Greek households grew at an average annual rate of almost 30 percent. This development was directly associated with the fact that, when Greece entered European Monetary Union in 2001, interest rates and the required reserve ratios of the Bank of Greece were adjusted to the Euro system rates and ratios, allowing for an expansion in domestic credit (Bank of Greece Economic Bulletin (2005)). In spite of this, household credit did not become too large quantitatively: according to the Household Indebtedness Survey done by the Bank of Greece, in 2006 half of the households surveyed reported not to have any outstanding debt from any bank or non-bank loan (much lower than the 23 percent reported in the U.S.). In fact, household debt-

expenditure declined while welfare more than doubled during the period. They document a well a dramatic fall in the poverty rates, which they generally associate with low educational qualification.

to-income ratios remained well below the European average throughout the entire decade, 38 percent compared with 56 percent for the media of the Eurozone. In addition, debt to income ratios were lower for households at the bottom deciles¹⁴, and in none of the income groups did the median overall debt-to-income ratio exceed 50 percent of their annual disposable income. Thus, Greek households' recourse to borrowing for financing their needs seems to have been kept at relatively low levels.

As opposed to the United States, the State played an active role in shaping the changes in income distribution. Unionization increased sharply; the minimum wage was increased by a total of 50 percent in five years. Total tax revenue as a share of GDP and inflation rate remained fairly constant throughout the decade; total government expenditures as a percentage of GDP, however, increased by a total of 18 percent throughout the decade. The budget deficit can be associated in part with the improvement in income distribution. The scene of the Greek society throughout the decade was characterized by strikes that ended with the government granting higher pays in the form of bonuses, and more jobs in the form of public employment. Public sector workers saw their wage doubled over the last decade. Social spending has been rising as well: between 2001 and 2007, social spending per capita almost tripled. In 2009, before the beginning of its crisis, a 1.6 billion euro "solidarity handout" was granted to low-income families, and a 12 month period was granted to borrowers to pay debts and mortgages.

Similarly, public expenditure in education as a share of GDP was increased by three quarters of the amount prevailing at the beginning of the decade. As a counterpart, the expected amount of years spent by individuals in the educational system rose to record levels. As documented by the IMF, the fraction of the population between 30 and 34 years old that owned a tertiary degree increased by a quarter. This greater educational expectation was in part due to a significant reduction in the rate of scholar abandonment, and partly due to adulthood reinsertion in the educational system (as a dramatic illustration, IMF estimations show that in 2009 107 percent of the population of relevant age completed primary education). This is of particular relevance in country where, as

¹⁴ 23.6 percent of the low-income households surveyed (defined as those with an annual income of up to 7,500) reported to have contracted some kind of loan. The corresponding figure for the second income class (households with annual income in the 7,501- 15,000 range) reached 39.5 percent, and further increases to 61.1 and 76.5 percent for households in the highest income groups.

most Mediterranean economies, income differences by educational level are a central factor in explaining inequality.¹⁵

The expansion was greatly led by the growth of Greece's principal economic activity, tourism, a labor intensive sector which directly or indirectly represents around 15 percent of its GDP¹⁶.

During the expansion, the number of workers directly employed in the tourism industry grew by 18 percent, the number of accommodations increased by 27 percent and the number of tourists by a quarter. At the same time, and curiously similar to the U.S, the construction sector flourished throughout the expansion, reaching a contribution of almost 7 percent of gross domestic product. However, this contrasted sharply with the situation of the rest of Greece's industry: the industrial production index remained flat throughout the decade, as gross fixed capital formation was mainly destined to service sectors, principally tourism and construction¹⁷; gross domestic investment in R&D as share of GDP remained constant.



Source: Eurostat, OECD

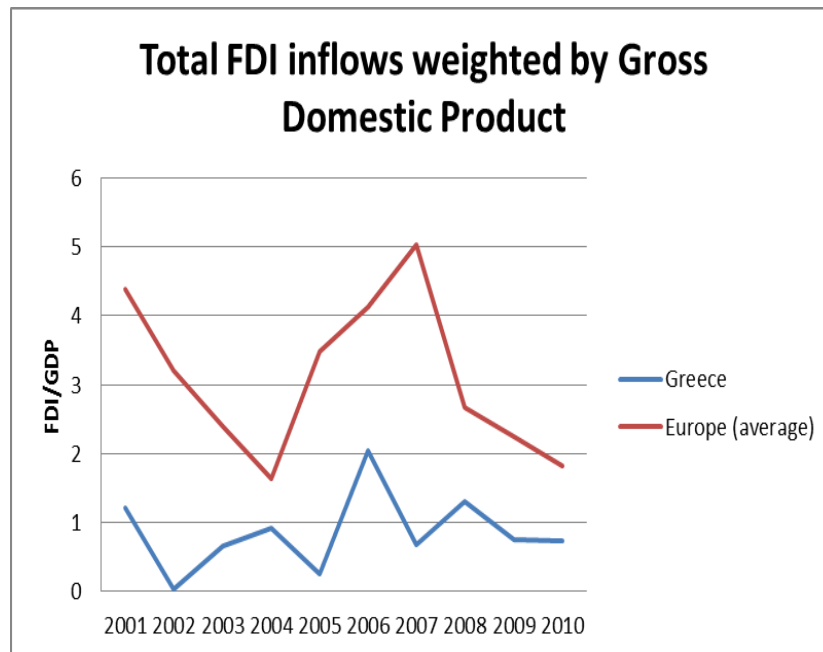
Outflows of foreign direct investment have remained almost null in comparison to those carried out by most European countries during the expansion, nor was the economy chosen as a major

¹⁵ The between group effect of education is higher than 15 percent as estimated by the EU-SILC. Similarly, Antoninis and Tsakoglou (2001) estimate that educational transfers by the State are the ones that have the highest impact on the level of inequality of the country.

¹⁶ Estimation by McKinsey & Company

¹⁷ "The greek economy and its outlook", op. cit.

center the for reception of foreign investments. Accumulated growth in goods trade deficit more than tripled the growth in the service trade surplus. In other words, the economic boom did not contribute to enhancing the competitiveness of Greece's production of goods, nor did it significantly allow for a rise in investment other than those related to tourism and construction, making it highly dependent on imports.



Source: United Nations Conference on Trade and Development Statistics.

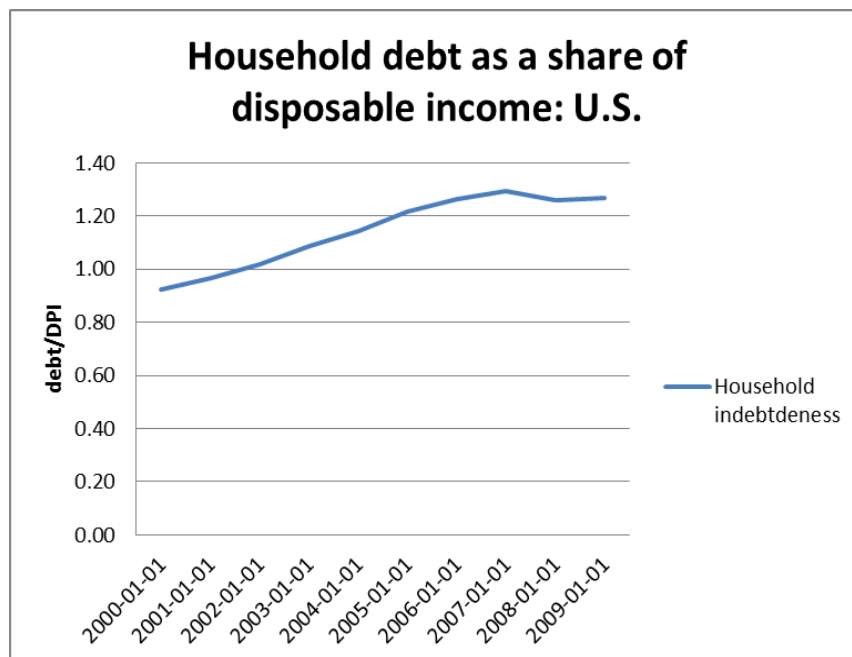
The regulatory environment also imposed limits to income accumulation: labor regulations, restrictions in the use of land, and other regulations of this sort that act as barriers to business growth characterize the economy. As a result, for example, one third of Greek manufacturers are micro firms, i.e. have less than ten employees, in contrast to 4.3 percent of the firms in Germany. The last ten years in Greece have seen an increasing predominance in the number of small sized business, whereas in the United States the opposite trend has been followed.

In conclusion, as for the United States, evidence indicates that both the characteristics of the economic boom experienced by the country during those years as the restrictions imposed by the political economy and regulatory environment of the time are congruent with the changes seen in its distribution of income.

IV. Crisis.

Despite the qualitative differences in the characteristics of their economic expansions, particularly in those related to changes in the distribution of income, both countries ended up in crisis.

The United States went through a financial crisis detonated by the collapse of its housing bubble, brought about by an increasing supply in the face of diminishing demand. By the end of 2007, total household debt as a share of gross domestic product had reached 100 percent (130 percent of disposable income). Of this amount, 80 percent was represented by mortgage debt.

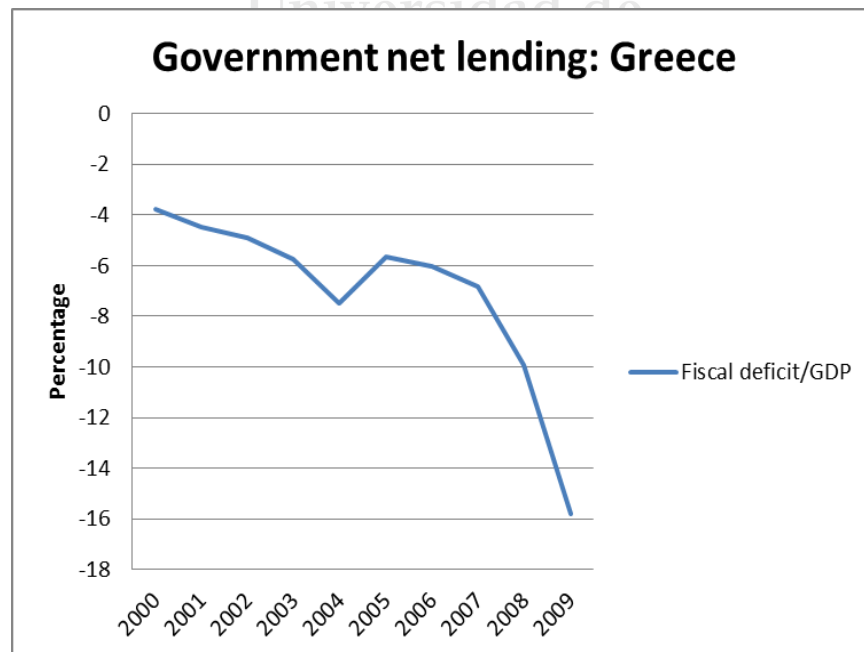


Source: Federal Reserve of St Louis

The level of household indebtedness proved to be unsustainable: households' debt service payments fell markedly throughout since the start of the recession, reflecting partly the increase in the rate of defaults. 1.2 million foreclosure filings were registered in 2006, 42 percent above those in 2005. States all around the country were reporting increases in foreclosures, some reporting as much as a 700 percent increase between 2005 and 2006. The crisis put in evidence the insolvency of institutions in the financial sector, whose balance sheets were tied to the value of the housing mortgages, bringing about bankruptcies and almost-bankruptcies which were rescued by the Government. In other words, the public sector, not financially constrained, had to take over debt of the private sector in order to avoid generalized bankruptcies and the repercussions they would entail. Total consumer loans owned by federal government have been increasing in absolute terms by more than half of its value since the start of the depression.

Credit to the private sector paralyzed, and so did domestic demand. Industrial production fell by more than 10 percent during the first year of the depression, but had started to do so in September 2007, before the date acknowledged as the beginning of the recession, December 2007, evidencing that both the instability of the credit market and/or a fading demand were already in operation when the bubble burst. The stock market crashed: between December 2007 and December 2008, Standard and Poor's Index 500 fell by more than 40 percent. Real gross domestic product per capita decreased a total of 5.6 percent during the recession years. The employment rate as a share of the population aged between 25 and 54 years old fell from 80 to 74 percent during the years of the recession, and has not augmented since then. Personal consumption has fallen further and has taking longer to recover than in any other recession since the Great Depression. In other words, the overprovision of debt proved to be unaffordable and led the economy into a deep recession.

In the case of Greece, crisis originated with rising doubts on the sustainability of its public debt, when by late 2009 its government announced that its deficit would be 12.7 percent of GDP and not 3.7 percent as had been previously forecasted. In mid-January 2010, the European Commission's statistical office revealed that Greece had been publishing false data in relation to the calculation of its fiscal deficit.



Source: OECD

With a debt to GDP ratio of almost 150 percent, interest rates on sovereign bonds soared and its government had to recur to an IMF and EU bailout loan in April 2010 in order to avert default. In exchange, the country was forced to adopt austerity measures to reduce its fiscal deficit to sustainable levels, again precondition for receiving additional loans which would be needed by August 2010 and July 2011. Real gross domestic product per capita fell by more than 10 percent between 2009 and 2011, accelerating the fall in living standards which had already begun since the onset of the global financial crisis. During the same period, unemployment surpassed 20 percent. Real public consumption expenditure has been reduced almost 15 percent, industrial production has dropped more the 20 percent and real private consumption expenditure has fallen about 9 percent since the beginning of the recession.

Finally, in neither case does the evidence available point to a reversion in trend of the changes in income distribution, indicating that the distributive transformations of the expansions are to remain solid unless policy intervention.¹⁸ The changes in income distribution seem to have become permanent in both economies.

V. Summing up: income distribution and the macroeconomic crisis

As a conclusion, if the distributive changes were qualitatively different between both economies, why did they both led to crisis?

Data on average personal consumption expenditure seemed to suggest increasing well-being in the United States, yet we have seen that more detailed analysis says much differently. What it does say, however, is that the alternative of substituting stagnated labour incomes with capital gains was not only believed permanently possible, but also readily accepted with great enthusiasm. Evidence of this is given by households' rising indebtedness and by the significant rise in expenditures related to the provision of financial services (see Table 1). At the same time, the increasing demand and the fact that the expansion was led by the growth of the financial sector suggests that the supply of financial services was profitable even in the presence of decreasing expected values of repayment, which justifies its overprovision.

¹⁸ Latest evidence from Piketty and Saez (2011) indicates that during the first year of the recovery, the top 1 percent received 93 percent of the income gains. Mitrakos et al. use data on Greece's Household Budget Service to estimate a decline in the income of the top decile close to 5 percent during 2010, while the corresponding figure for the three bottom deciles to be less than 3 percent. Similarly, Eurostat indicates a slight fall in the S80/S20 ratio during the year of recession. Despite the fall in the living standards of the population, both the low and the high income households appear to be losing in at least similar proportions during the crisis. In fact, Greece's minimum wage has continued to grow even during the years in crisis.

The case of the U.S. seems to have involved an inherent contradiction in the fact that the provision of credit was in itself the flourishing economic activity. As resources were diverted from other less profitable sectors, real income was bound to be lagging in those that were not sharing the expansion. Consequently, and if the supply of credit was enough to make it cheaply available, demand for credit would grow even further and would in turn increase the profitability of the provision of debt. Eventually, as the rising cost of debt was accompanied by stagnating gains in other sectors, preconditions for consumption smoothing would eventually be violated, and the debt supplied would have exceeded the amount affordable by households. This contradiction was brought to the light with the crisis: as the housing bubble burst and the rate of defaults increased, the business of mortgage provision proved unsustainable, and hence the possibility of permanently substituting labour income with capital gains proved to be false. In a manner, these thoughts resemble the theory of surplus value but with overproduction developing in only one sector of the economy, the financial sector, which has the particularity of being able to generate a crisis in the rest of the economy through contagion.

In other words, although the deterioration in the distribution of income may have contributed to increasing households' demand for credit, the explanation that we are truly missing is for *what was that created the belief, at the moment the debt was being undertaken and was being supplied, that the repayment of such a high level of leverage would eventually be possible.*

Greece shows a different scenario. Its economic boom favoured labour intensive sectors such as tourism and construction, and together with a State that performed an active redistributive policy, it allowed for income gains to be shared by the entire income ladder. Rising consumption was allowed for by this improvement in real income and not by rising household leverage. As production of tradable goods was not significantly increased, this increasing expenditure impacted directly in its current account. At the same time, the State's finances deteriorated notoriously throughout the decade, as public expenditures rose and current taxes were not raised. Consequently, we can see that rising consumption and well-being was not inhibited by the increase in public debt, nor was the growth in real incomes perceived as temporary either by the public or the private sector. In conclusion, the Greek expansion shows the failure of *Ricardian equivalence*, for public indebtedness does not appear to have been internalized as private.

Briefing, this work has shown that a crisis can evolve *both* in a scenario of improving as in one of worsening income distribution, for overestimation of future wealth can occur in either one of

them. Emphasis should be made, instead, in what generated those erroneous expectations, and if they are not found to be an endogenous response to the distributive change, then income inequality is neither a necessary nor a sufficient condition for the resulting crisis.

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