

# **Is secular stagnation the new reality for the first world?**

## **A comparison of developed economies**

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### **ABSTRACT**

This study analyzes the current economic situation, from the 2007-08 Financial Crisis to the present, in the developed world – taking into account a set of representative countries – from the perspective of the secular stagnation concept, starting from the analysis done in Summers (2013). The concept of secular stagnation is defined, analyzed and discussed, also considering the economic, historical and political context in which it develops. Some causes that may explain the situation since the outbreak of the crisis are gathered and exposed, dividing them into demand-side and supply-side causes. A data analysis of different economic indicators allows to conclude that the developed world is indeed suffering from secular stagnation – taking into account the definition previously built – and that the most relevant causes that help to explain this situation are tight monetary policy and declining population growth and aging population. Solutions to the current situation of stagnation, hence, have to be aimed at solving the problems exhibited by these two most relevant causes.



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## INTRODUCTION

### 1. Motivations and origins of the study

Since the 2008 financial crisis outburst, the vast majority of developed countries have suffered the problems associated to a weak recovery. In the US, for instance, from all major post-World War II recessions this has been the one with a weakest recovery<sup>1</sup>. Unemployment has remained stubbornly high in the EU on the whole and in the majority of its members in particular, even also in the US<sup>2</sup>, the country where the recovery has been stronger, though. GDP has fallen further behind potential<sup>3</sup> and growth, in the best cases, is slightly positive<sup>4</sup>. Inflation remains anchored well below the two percent target<sup>5</sup>, despite the world's massive monetary stimulus pursued in the last years, which is certainly not giving all the expected fruits<sup>6</sup>. Yet, it is fair saying that the positives consequences derived from unconventional monetary policies have been visible over those economies whose central banks have been active in stimulating their economy, but the power has not been enough to put the economy back to its potential and even less to return to pre-crisis levels of employment, inflation and GDP growth. Debt levels – both private and public – are at all-time high<sup>7</sup> and this, too, hinders the recovery from being successful. Investment fell sharply after the financial crisis and has also remained weak since then. Macroeconomic figures have been improving in the last years, especially in 2013<sup>8</sup>; even so, there really exist many challenges, and many of the problems are far from being completely solved. Probably unemployment stays as one of those major problems, both in Europe and the US. As a matter of fact, in the US in the last four years the share of adults who are working has not increased at all, while in Spain the unemployment rate rose to unbelievable levels remaining there for too long.

Under this general context, economist Larry Summers delivered a speech at the International Monetary Fund in November, 2013. During his exposition he raised the idea that the developed world in general and the US in particular might very well be stuck in a situation of secular stagnation, using the same expression coined by economist Alvin Hansen during the 30's in order to explain the weak recovery of the US economy during the Great Depression. Summers did a summary of the current economic situation for then raising such hypothesis. The speech was highly controversial and widely discussed in academic circles and in the press. It was the first time in decades that a prominent economist in an official and renowned institution was raising the problem of a period of secular stagnation. This speech has certainly served as a powerful inspiration for the realization of this study. The hardness of the economic crisis, the widespread impact that it had throughout the developed world and the slow recovery that has occurred since then, pushed for a deeper investigation about the origins, causes and consequences of this turbulent economic time. It is also sought a greater understanding of the triggers of this situation and of

<sup>1</sup> “In the first quarter of the 1983-84 recovery NGDP rose at an 11% annual rate (7.7% real, 3.3% inflation)” (Sumner, 2013a). Yet NGDP growth during the current recession has come to be weaker despite the measures taken: “The average NGDP growth rate during the recovery has been 4.1% [...] NGDP growth was about 4.1% in 2012 and 4.0% so far in 2013” (Sumner, 2013b). The situation is equivalent – or even worse – for Europe, especially in periphery countries like Spain, Portugal or Greece (Sumner, 2012).

<sup>2</sup> “The euro area seasonally-adjusted unemployment rate was 12.0 % in January 2014, stable since October 2013; it was 12.0 % in January 2013. The EU-28 unemployment rate was 10.8 % in January 2014, stable since October 2013; it was 11.0 % in January 2013. [...] At the end of 2012 the unemployment rate for the EA-17 hit 11.8 %, the highest rate since 1995. [...] In 2000, the unemployment rate in the United States was around 4 %, considerably lower than in the EU. It remained much lower until early 2008, when unemployment started to increase rapidly. By the beginning of 2009 the unemployment rate in the United States had reached the same level as in the EU-27, and stayed above the EU-27 rate until the beginning of 2010. Since then the US unemployment rate, while remaining relatively high, has followed a downwards path which has taken it to 7.8 % at the end of 2012” (Eurostat, 2014).

<sup>3</sup> This situation is analyzed in this study's Part II and Part III, but especially in the last one.

<sup>4</sup> See previous note.

<sup>5</sup> See note 3.

<sup>6</sup> The US QE monetary stimulus program has been dubbed by some commentators “the biggest money-printing exercise in world history” (Ross, 2013). Similar programs have been enacted by both the UK and Japan. The BCE has also immersed in unconventional monetary policies, though its measures have been more timid. Even so, the recovery is still fragile and far from finished.

<sup>7</sup> Spain is the foremost example of a rapid – and disturbing - rise in both public and private debt. Regarding public debt, in 2003 the Spanish public debt was €382,032M, a 48.80% of GDP. In 2013, however, public debt has been of €960,640M, rising €75,987M from 2012, when public debt was 86.00% of GDP. In 2013 it amounted for 93.90% of GDP (source: Bank of Spain).

<sup>8</sup> See data in Part III.

the most relevant aspects in order to understand what may be happening. Summers's speech, thus, served as the spark that ignited the interest in plunging into an investigation of this matter.

## **2. Scope of the study**

The analysis and discussion of the main ideas that Summers exposed during the speech as well as the discussion of the secular stagnation hypothesis form the backbone of all the following study. Starting from this speech and taking into account the historical precedents, the current economic situation – that is different from the Great Depression and that's why the secular stagnation hypothesis need to be redefined – and the points made by other economists about Summers' thesis, this study tries to expand the ideas raised by Summers and, most importantly, reach the end of the matter; namely, discuss and conclude whether developed economies are indeed suffering from secular stagnation and which are the causes that explain such weak post-crisis recovery in the majority of developed countries.

## **3. Objectives of the study**

This study has two main objectives, which can be presented through two questions that the whole analysis and discussion will have to answer: (1) are developed economies really suffering from secular stagnation? (2) Which are the most relevant causes behind the post-Financial Crisis recovery (or in the case that in (1) it is concluded that there is certainly a secular stagnation: which are the most relevant causes that may have caused a situation of secular stagnation?). To answer these questions rightly, it will be compulsory to build a definitive and clear definition of what really is “secular stagnation” and what it entails.

## **4. Structure of the study**

The study has been divided in four parts – with its own sections and subsections –, which although are presented independently of each other, they are certainly related. Part I (Antecedents) serves as a brief introduction to the other parts. Firstly, this part introduces Larry Summers's speech and thus his secular stagnation hypothesis; that is to say, it provides the basis and guidelines for the discussion. Then, the rest of this part is an exposition and analysis of the historical context in which Alvin Hansen developed the original secular stagnation hypothesis during the Great Depression and of the historical context – which was born during the late seventies and first eighties – that has led to the 2007-08 Financial Crisis, the subsequent Great Recession and the Great Stagnation. Thus, this part introduces the ideas and in general the topic of discussion, the historical contexts that are necessary to understand such development and the 2007-08 Financial Crisis, the ground in which the developed world is currently moving.

Part II and Part III are the most important parts of the study. Part II (analysis) begins by exposing the main features that a period of secular stagnation should have – through the study of some definitions and the works and analysis of other economists –. This directly leads to build a concise definition of what is secular stagnation and what it entails. This will be, hence, the definition used for the following analysis and in the rest of the study. This section is crucial because by first time materializes what has to be understood by secular stagnation – which was not directly defined by Summers in his speech –. The rest of this part consists in the exposition and explanation of a set of causes – divided in two groups: demand-side causes and supply-side causes – that could serve to explain why the developed world is immersed in a period of weak growth, high unemployment and low inflation. Part III (results and discussion) consists in the analytical discussion of the points raised in Part II. In Part III questions (1) and (2) – previously mentioned – are answered using for it the analysis of different economic indicators. That is, while part II is mainly a theoretical exposition of what is secular stagnation and which could be the causes behind the weak recovery (because it has not been still concluded if there is really a secular stagnation, that's done in the next Part), Part III is the empirical study that serves to be conclusive about the feasibility of a situation

of secular stagnation in the developed world and the most relevant causes of it. Finally, Part V is a brief conclusion of the main points of the study.



## PART I: ANTECEDENTS

This first part serves as an introduction to the analysis that will be conducted throughout the study. Secular stagnation, which is the subject of study, is contextualized in this part, through the analysis of the historical situation in which it was first developed, before it re-emerged strongly beginning with the global crisis of 2007-08. Larry Summers has been the most prominent economist on raising again more strongly the hypothesis that developed nations could be experiencing a period of secular stagnation. Basically, all this study is a discussion and deepening of the lines of debate and investigation opened by Summers during his speech, trying to see if it is definitely true that the developed economies are immersed in a state of secular stagnation. To reach this point it is important to introduce the topic by analyzing the Great Depression and the theories of Alvin Hansen, the first economist to state the hypothesis of secular stagnation. Then, it is also important to try to understand the recent context in which this hypothesis – although with nuances and this time applied to the current situation – has re-emerged, just after the world economic crisis and the subsequent weak and slow recovery.

### 1. Larry Summers and the return of the secular stagnation hypothesis

As mentioned above, the Larry Summers<sup>9</sup> speech at the IMF was the inspiration for the whole analysis that is carried out throughout this study<sup>10</sup>. Moreover, this speech also provides the basis for discussion and research on the issue of secular stagnation applied to the current developed world. For these reasons, it is important, first of all, to make a brief analysis of the views expressed by Summers in his speech and discuss the major issues he raised regarding the current economic situation in many countries. These ideas and issues are the backbone on which the whole study will oscillate.

The substantive discussion that arises ultimately revolves around the path of weak recovery the US in particular, but also the rest of the developed world, is passing through despite the big amount of energy and resources spent in the process of boosting the economy. Summers' main question is about what could have been the causes of that weak recovery despite the efforts made by many governments, while trying to locate the problem in order to solve it. To do this, he does not stay on the surface, but he attempts to delve deep into the issue, aiming at finding the real causes, whatever they are (just like Hansen, as will be explained in the next section, tried to find the profound causes behind the Great Depression). Furthermore, Summers already considers the importance of the financial sector and its role in the crisis (*"I'm going to talk about something else that seems to me to be profoundly connected; and that is the nagging concern that finance is too important to leave entirely to financiers"*<sup>11</sup>).

Despite the measures taken just after the financial crisis outbreak and the more or less satisfactory containment of it – especially thanks to the key role that all major central banks had during the first years of the crisis –, preventing another Great Depression, there are still problems that have not

<sup>9</sup> Larry Summers is an American economist that has been Chief Economist of the World Bank (1991–1993), United States Deputy Secretary of the Treasury under the Clinton Administration (1995–1999), Secretary of the Treasury under the Clinton Administration (July 2, 1999 – January 20, 2001), President of Harvard University (July 1, 2001 – June 20, 2006) and the 8th Director of the National Economic Council under the Obama Administration (January 20, 2009 – December 31, 2010). Summers has also worked in the private sector and as a columnist in major newspapers. In 2013 his name was raised to succeed Ben Bernanke as FED chairman, although President Obama eventually nominated Federal Reserve Vice-Chairwoman Janet Yellen for the position.

<sup>10</sup> The debate was delivered at the IMF Economic Forum, during the Jacques Polak Annual Research Conference, in November 8, 2013. Among the distinguished attendees to the debate were Ben Bernanke –FED Chairman during the Financial Crisis –, Stanley Fischer – chairman of the Bank of Israel during the Financial Crisis, former chief economist at the World Bank and professor at the MIT Department of Economics – and Kenneth Rogoff – economics professor at Harvard University –. The debate was moderated by Olivier Blanchard – Economic Counsellor and Director of the IMF Research Department –. There were three main topics of discussion: (1) crises: yesterday and today, (2) Mundell-Fleming lecture (delivered by Paul Krugman) and (3) Economic Forum: policy responses to crises. The third one discusses which could be the adequate policies to apply when facing a severe crisis. The IMF explains the forum this way: "financial crises often require immediate and comprehensive policy responses, call for major changes in financial sector policies, and can compel global coordination of policies. The Economic Forum discussed optimal policy responses to mitigate the adverse effects of crises" (IMF, 2013).

<sup>11</sup> All extracts of his speech used throughout the study come from the following transcript: Transcript of Larry Summers speech at the IMF Economic Forum, Nov. 8, 2013. (2013). In *Facebook*. Retrieved November 19, 2013, from <https://m.facebook.com/notes/andy-fellmy/transcript-of-larry-summers-speech-at-the-imf-economic-forum-nov-8-2013/585630634864563>. The speech can be watched here: YouTube. (2013, November 8). Larry Summers at IMF Economic Forum, Nov. 8 [Video file]. Retrieved from <http://www.youtube.com/watch?v=KYpVzBbQIX0>

been solved and provide a glimpse that there are still unresolved fundamental problems – he mentions especially employment –, despite the fact that the Great Recession officially ended in 2009 (*“But there is, I think, another aspect of the situation that warrants our close attention, and tends to receive insufficient reflection, and it is this: the share of men, or women, or adults, in the United States, who are working today, is essentially the same as it was four years ago”*). Next, Summers points out to the fact that this analysis about the current economic situation is not unique of the US economy (*“And the American experience is not completely unique in this regard, and this experience is not completely unique”*). This point serves to apply indeed the concept of secular stagnation – once defined – to the vast majority of developed countries and see that whether, despite their obvious differences, they certainly can hold in common a tendency towards stagnation.

After this brief discussion of the economic situation and the recent past that has led to it, Larry Summers mentions for the first time the concept of secular stagnation, but without clearly defining it:

*“It is a central pillar of both classical models and Keynesian models that it is all about fluctuations: fluctuations around the given mean, and that what you need to do is have less volatility. I wonder if a set of older ideas [...] that went under the phrase “secular stagnation” – are not profoundly important in understanding Japan's experience, and may not be without relevance to America's experience.”*

Summers now goes to a key point in his reasoning; namely, that the years before the crisis may be the ones that really show that there exists a problem due to the fact that despite the housing bubble there was no excess of demand – the unemployment rate was not excessively low and there was no strong inflationary pressure – (*“too easy money, too much borrowing, too much wealth. Was there a great boom? Capacity utilization wasn't under any great pressure. Unemployment wasn't under any remarkably low level. Inflation was entirely quiescent. So somehow, even a great bubble wasn't enough to produce any excess in aggregate demand”*). Not even a bubble was enough to produce any excess in aggregate demand. Hence, the economy had an intrinsic problem already before the financial crisis outburst, and probably that crisis has just exacerbated this fundamental problem, pulling it out to the surface. Thus, Summers does not seem to see only a problem of fluctuations, a sheer problem of business cycles that can be easily solved via counter-cyclical policies, he is seeing a much deeper problem which was already present before 2008 and appeared strongly after the crisis. In short, he is pointing out that a financial meltdown by itself does not wholly explain why the recovery has been so weak<sup>12</sup>.

Then Summer comes to expose his main thesis – and the one much widely discussed –; namely, that the problem that developed economies – especially the US – may be suffering is due to the fact that the real interest rate is negative but not negative enough to equal the natural real interest rate that, for different reasons, is even more negative (it is difficult to know how negative they are, but he says that it might be two or three percent negative). In a nutshell, this is the answer that Summers gives to why the economy is too weak after four years since the meltdown (here the problem seen by Summers is only exposed. In the next part it will be explained and analyzed in depth):

*“So what's an explanation that would fit both of these observations? Suppose that the short-term real interest rate that was consistent with full employment [i.e., natural real interest rate] had fallen to negative two or negative three percent sometime in the middle of the last decade. Then what would happen? Then even with artificial stimulus to demand coming from all this financial imprudence, you*

<sup>12</sup> To exemplify this thesis, he builds an analogy. He asks the public to imagine that for two or three months eight percent of the electricity went off (that analogy bears resemblance to the fact that the financial system collapsed which was also a big percentage of GDP). Electricity is of course very important for the economy, so of course GDP would collapse after the electricity went off. Yet, and that's the key point, what you would expect then is a “a lot of catch-up”; that is to say, that a lot of what have been lost due to this lack of electricity would rapidly began to be produced again so once all has been normalized you would expect more GDP growth than before. Summer is implicitly asking: is that what has happened after the financial crisis (a crisis in the “electricity system”)? No. It's not “normal” than after four years since the light went off for a while you have less GDP than before the crisis. I.e. the economy has not recovered yet from the short circuit of 2008, so that something more stays beneath the surface.

wouldn't see any excess demand; and even with a relative resumption of normal credit conditions, you'd have a lot of difficulty getting back to full employment”.

Summers also realizes that this problem is difficult to solve only by conventional fiscal or monetary policies, especially under a situation where inflation is excessively low<sup>13</sup> and nominal interest rates have already been lowered to zero by all major central banks in order to stimulate the economy<sup>14</sup>. Besides, there might exist the problem that the same policies that now could boost the recovery might in the future create another severe financial crisis. That means precisely that a strong recovery now could be achieved at the expense of feeding another future crisis (*“And most of what would be done under the auspices – if this view is at all correct – would be done under the aegis of preventing a future crisis would be counterproductive, because it would in one way or other raise the cost of financial intermediation, and therefore operate to lower the equilibrium interest rate that was necessary”*).

All these are the main thesis to be drawn from the important speech<sup>15</sup> delivered by Larry Summers at the IMF. Each one of his ideas is analyzed in greater or lesser extent along this study. The study seeks to deepen into the theme starting from the road open by Summers, researching and expanding his arguments, but also complementing it and adding new ideas.

## 2. The first secular stagnation hypothesis and its context

The previous analysis of the Larry Summers speech has served as an introduction to the topic and also as a guide to what the situation is and which are the problems that arise. To understand the concerns of Summers and other economists about the weak economic recovery and the rediscovery of the secular stagnation hypothesis, it is necessary to go back to the years of the Great Depression, explaining the context and historical situation that led economist Alvin Hansen to be the first on announcing this hypothesis for explaining the bad economic consequences and the difficult recovery during the Great Depression. In this section the main characteristic aspects from Hansen's secular stagnation hypothesis are also exhibited.

### 2.1. The Great Depression as the great paradigm shift

The thirties and forties saw a big development in economic theory and analysis. This was in great part a response by economists to what might be considered as the toughest and deepest crisis in modern economic history: the Great Depression. It involved a great paradigm shift joined with a real challenge for economists and policy makers. The consequences of the Great Depression were enormous, especially in the US where the first panic began, but swiftly spread to other parts of the world, like Europe (it's widely argued that the rise of Hitler to power in Germany was indeed a consequence of the thirties economic crisis in Germany, which in turn was a byproduct of the American Great Depression). It was in this environment where many economists had to discuss new ways to boost growth, lower unemployment and avoid the worst consequences of a too long Recession and the consequences it was having over the population.

The Great Depression began in the early 1929 and ended at different times throughout the 30s or early 40s, depending on the country. It was the longest depression in time, the deeper, and the one that

<sup>13</sup> And he adds: “But imagine a situation where natural and equilibrium interest rates have fallen significantly below zero. Then, conventional macroeconomic thinking leaves us in a very serious problem; because we all seem to agree that, whereas you can keep the Federal funds rate at a low level forever, it's much harder to do extraordinary measures beyond that forever – but the underlying problem may be there forever. It's much more difficult to say, well, we only needed deficits during the short interval of the crisis if aggregate demand, if equilibrium interest rates, can't be achieved given the prevailing rate of inflation”.

<sup>14</sup> He again also exposes what is the worrying situation regarding conventional policies: “one has to be concerned about a policy agenda that is doing less with monetary policy than has been done before, doing less with fiscal policy than has been done before, and taking steps whose basic purpose is to cause there to be less lending, borrowing and inflated asset prices than there was before”. And the intrinsic and ultimate problem derived from this crisis is trying to learn “how we manage an economy in which the zero nominal interest rate is a chronic and systemic inhibitor of economic activity, holding our economies back below their potential”.

<sup>15</sup> His speech had a very wide repercussion in the media but also in the academy, both in Europe and the US. This compilation of articles written in the European site of economic debate Voxeu is a clear example of the importance that have had his speech in sparking the debate: (Various Authors, 2014).

affected more countries in the twentieth century. It probably has been the largest and most important economic depression in modern history, and it is currently very important insofar as it is still used in the 21st century as a point of reference and deep study to show how a massive economic decline in the world economy looks like and also which could be the solutions and measures to take for dealing with such event. In fact, the Great Depression has remained as the most studied crisis and, however, there is no complete consensus about which the exact causes were and why it lasted for so long.

Although the Great Depression originated in the United States, it rapidly spread its worst consequences all over the world. Most historians often use as the starting date the stock market crash of October 29, 1929, commonly known as "Black Tuesday". The end of the depression in the United States is associated with the onset of the war economy during World War II, which began operating in 1939. Even so, there was no real recovery of the economy until the last years of the world war. The scope of the Great Depression was international; it had devastating effects in both developed and developing countries and helped to the rise in nationalism and militarism of the thirties that finish in a second world war. International trade was deeply affected with a drop of between a 50 and a 65 percent, inasmuch as the US, which was already a prominent character in the international scene, adopted protectionist policies that harmed foreign countries and international trade as a whole. Other indicators were also deeply affected, as personal income, tax revenues, prices and corporate profits. Cities around the world were hit hard, especially those dependent on heavy industry which led in firings and an all-time high unemployment (it reached 25% in the US, the highest record unemployment rate in the history of that country, while in other part of the world it reached the 33%). Construction virtually halted in many countries. Farming and rural areas suffered as prices fell by 40 to 60 percent, and throughout the thirties the US suffered a very tough drought that affected the Great Plains in America, this in turn affecting the production and distribution of basic products (wheat, meat, etc.). Faced with falling demand and with few alternate sources of jobs, areas dependent on the primary (industries such as agriculture, mining and logging) suffered the most. The industry resented strongly, too. Furthermore, the gold standard was another factor intensifying problems. The Great Depression had an enormous human and social cost, which cost the U.S. more than a decade to recover. There was political turmoil and social uprisings which destabilized different government all over the world. Economists were constantly pressed to find new ways of stimulate the economy and consolidate a strong recovery (Gokay, 2009).

When the Great Depression started after the panic, very few people knew or sensed which would be the consequences and how would last. This was something that, although in a smaller scale, also happened after the Lehman Brother Crash in 2008. Even shortly after the Wall Street Crash of 1929, optimism persisted. John D. Rockefeller, who was one of the richest and most influential industrials in that time, said that "These are days when many are discouraged. At 93 years of my life, depressions have come and gone. Prosperity has always returned again" (Gokay, 2009). At first, this Crash was seen as a normal fluctuation of the market that will not last for too long. Eventually, the economy will recover. It's true that the economy will recover in the very long-turn but the question that nobody could have answered was how much time will take the economy to return to previous pre-Crash growth and how much social impact this Depression would have. Finally, countries began to gradually recover in the mid-1930s, but its negative effects on many countries lasted until the beginning of the Second War Mundial. The election as President of the US of Franklin Delano Roosevelt and which was his great policy to end with the Depression, the New Deal, established in 1932, marked the beginning of the end of the Great Depression in the United States, although there was certainly some relapses that the one in the mid-thirties where the unemployment rate remained for three years (1932-1935) above but near the 20%. However, in Germany, the disappearance of external funding in the early 1930s, and increasing economic difficulties, led to the emergence of National Socialism and the rise to power of Adolf Hitler, as it has been said before.

Now, it's worth to expose which was the debate back in the thirties and which theories about the causes of the Great Depression and the subsequent weak recovery have been consolidated as the most probable ones. For this, it's important to, first of all, look at some data from the thirties to see how the major economic indicators behaved:

Table 1: Great Depression's main economic indicators [source: Mankiw (2010, 326-327)]

Year	Unemployment Rate (1)	Real GNP (2)	Consumption (2)	Investment (2)	Government Purchases (2)	Year	Nominal Interest Rate (3)	Money Supply (4)	Price Level (5)	Inflation (6)	Real Money Balances (7)
1929	3.2	203.6	139.6	40.4	22.0	1929	5.9	26.6	50.6	-	52.6
1930	8.9	183.5	130.4	27.4	24.3	1930	3.6	25.8	49.3	-2.6	52.3
1931	16.3	169.5	126.1	16.8	25.4	1931	2.6	24.1	44.8	-10.1	54.5
1932	24.1	144.2	114.8	4.7	24.2	1932	2.7	21.1	40.2	-9.3	52.5
1933	25.2	141.5	112.8	5.3	23.3	1933	1.7	19.9	39.3	-2.2	50.7
1934	22.0	154.3	118.1	9.4	26.6	1934	1.0	21.9	42.2	7.4	51.8
1935	20.3	169.5	125.5	18.0	27.0	1935	0.8	25.9	42.6	0.9	60.8
1936	17.0	193.2	138.4	24.0	31.8	1936	0.8	29.6	42.7	0.2	62.9
1937	14.3	203.2	143.1	29.9	30.8	1937	0.9	30.9	44.5	4.2	69.5
1938	19.1	192.9	140.2	17.0	33.9	1938	0.8	30.5	43.9	-1.3	69.5
1939	17.2	209.4	148.2	24.7	35.2	1939	0.6	34.2	43.2	-1.6	79.1
1940	14.6	227.2	155.7	33.0	36.4	1940	0.6	39.7	43.9	1.6	90.3

Source: *Historical Statistics of the United States, Colonial Times to 1970, Parts I and II* (Washington, DC: U.S. Department of Commerce, Bureau of Census, 1975).

Note: (1) The unemployment rate is series D9. (2) Real GNP, consumption, investment, and government purchases are series F3, F48, F52, and F66, and are measured in billions of 1958 dollars. (3) The interest rate is the prime Commercial Paper

rate, 4-6 months, series  $\times 445$ . (4) The money supply is series  $\times 414$ , currency plus demand deposits, measured in billions of dollars. (5) The price level is the GNP deflator (1958 = 100), series E1. (6) The inflation rate is the percentage change in the price level series. (7) Real money balances, calculated by dividing the money supply by the price level and multiplying by 100, are in billions of 1958 dollars.

Much of what we currently know about the Great Depression is the result of the study that has been conducted in recent decades by economists who mostly did not live the Great Depression. Back in the thirties there was a lot of confusion about which were the causes underlying such period of low growth and high unemployment, and that's way there was not clear which were the correct policies and even less if these policies would give the results needed. Despite the study that has been carried in recent years by countless economists, even today, more than half a century after the event, economists continue to debate the causes of this major economic downturn. Now, the different explanations about what caused the Great Depression are going to be exposed and discussed, from a XXIst century perspective and summarizing the main theories that have developed since the event took place. This will serve to introduce the context in which Alvin Hansen, Evsey Domar and Paul Baran and Paul Sweezy developed their work. They had in mind the problems associated with capitalism and they tried to present some alternative theories to explain the problems the economy faced.

In our new century, we have somewhat a consensus about three main hypotheses that might have caused the Great Depression: 1) The spending hypothesis (shock to the IS Curve), 2) the first money hypothesis (sock to the LM curve), 3) the second money hypothesis (the effects of falling prices)<sup>16</sup>. The brief analysis of this hypothesis will serve not only for having a better understanding of the Great Depression – which already finished and has only an historical attractive – but to figure out if a new Depression may happen again<sup>17</sup> or if we have the tools to avoid such an episode after the 2008 Financial Crisis. This historical analysis will complement the analysis that is carried out about the current situation.

### 2.1.1. The spending hypothesis

The spending hypothesis asserts that the Great Depression was largely due to an exogenous fall in the demand for goods and services; that is to say, a leftward shift of the IS curve. The evidence to support this hypothesis has to do with the fact that output and interest rates both fell, which is what a leftward IS shift would cause.

<sup>16</sup> “The model of aggregate demand called the IS-LM model is the leading interpretation of Keynes’s theory. The goal of the model is to show what determines national income for a given price level. There are two ways to interpret this exercise. We can view the IS-LM model as showing what causes income to change in the short run when the price level is fixed because all prices are sticky. Or we can view the model as showing what causes the aggregate demand curve to shift. These two interpretations of the model are equivalent [...] The IS-LM model, thus, serves as a step forward toward understanding. The IS curve represents the equilibrium in the market for goods and services, and the LM curve represents the equilibrium in the market for real money balances. The IS and LM curves together determine the interest rate and national income in the short run when the price level is fixed” (Mankiw, 2010, 287-288). The following presentation (Mankiw, 2013) also summarizes the most important ideas regarding the IS-LM curve and its impact on the economy and its importance for policy making.

<sup>17</sup> Paul Krugman, in 2010, already noted the parallels between the austerity policies applied during the first years of the Great Depression and the policies that were being applied in the first years of the 2007-08 Financial Crisis (there was a “30’s feeling”): “Many economists, myself included, regard this turn to austerity as a huge mistake. It raises memories of 1937, when F.D.R.’s premature attempt to balance the budget helped plunge a recovering economy back into severe recession. And here in Germany, a few scholars see parallels to the policies of Heinrich Brüning, german chancellor from 1930 to 1932, whose devotion to financial orthodoxy ended up sealing the doom of the Weimar Republic [...] How bad will it be? Will it really be 1937 all over again? I don’t know. What I do know is that economic policy around the world has taken a major wrong turn, and that the odds of a prolonged slump are rising by the day” (Krugman, 2010).

In turn, there are three possible factors that may explain this leftward shift of the IS curve: (1) the stock market crash – an exogenous shock indeed – and which subsequently depressed consumption (C)<sup>18</sup>; (2) a drop in investment, caused by a tough correction after the 20's overbuilding period and the difficulty to obtain financing for investment after widespread bank failures; (3) contractionary fiscal policy due to higher tax rates and cutting spending to combat increasing government deficits.

### 2.1.2. The first money hypothesis

This first money hypothesis asserts that the Great Depression was largely due to a huge fall in the money supply; that is to say, a leftward shift of the LM curve. The evidence to support this hypothesis has to do with the fact that M1<sup>19</sup> fell a 25% during 1929-33.

Even so, this hypothesis has two main problems. The first problem is that prices (P) fell even more, so  $\frac{\text{Money}}{\text{Prices}} \left(\frac{M}{P}\right)$  actually rose slightly during 1929-31. And the second problem is that nominal interest rates fell, which is the opposite of what a leftward LM shift would cause.

### 2.1.3. The second money hypothesis

This second money hypothesis asserts that the severity of Great Depression was due to a huge deflation. The evidence to support this hypothesis has to do with the fact that prices (P) fell a 25% during 1929-33. Besides, this deflation was probably caused by a fall in money supply (M<sup>20</sup>), so perhaps M played an important role<sup>21</sup>.

## 2.2. Alvin Hansen's secular stagnation hypothesis

The Great Depression was not only an unexpected shock for the economy and the society; it also was a huge intellectual challenge for the whole economic profession who observed with resignation the effects of such a great slump. Many theories developed during the early 30's and later, trying to explain which the factors behind the Great Depression were. Among the many economists who developed different theories – either to explain the Depression first and subsequently to trying to fix the underlying problems –, there was one especially interesting, though somewhat pessimistic<sup>22</sup>, for the purposes of that work; namely: Alvin Hansen.

For the exposition of the Hansen's secular stagnation thesis, how he understood it and the main features of that thesis, this study focuses on a Presidential address Hansen delivered at the Fifty-first Annual Meeting of the American Economic Association in Detroit, Michigan, the 28<sup>th</sup> December of 1938, where he most clearly exposed his idea<sup>23</sup>. The following section exposes and analyses the fundamental ideas behind Hansen's secular stagnation hypothesis just as he exhibited them during his speech.

Earlier in his speech, Hansen exposes its fundamental hypothesis; namely, what he understands by secular stagnation.

<sup>18</sup> It's interesting to look at some data to understand the magnitude of the financial shock. From October 1929 to December 1929, the Standard & Poor's 500 (a stock market index based on the market capitalizations of 500 large companies having common stock listed on the NYSE or NASDAQ) fell by 17%. From October 1929 to December 1933 it fell by a 71%. (Mankiw, 2013).

<sup>19</sup> M1 is a measure of the money supply that includes all physical money, such as coins and currency, as well as demand deposits, checking accounts and Negotiable Order of Withdrawal (NOW) accounts. It measures the most liquid components of the money supply, such as cash and assets; that is to say those that can quickly be converted to currency.

<sup>20</sup> "The money supply is commonly defined to be a group of safe assets that households and businesses can use to make payments or to hold as short-term investments. There are several standard measures of the money supply" (FRS, 2012).

<sup>21</sup> About the negative effects that deflation has on the economy see also Mankiw (2013).

<sup>22</sup> The thesis was already highly controversial during the time it was exposed by Hansen. George Terborgh, who was one of his critics, attacked Hansen as "a pessimist and defeatist". The secular stagnation hypothesis certainly drew a gloomy future of high unemployment and low growth with difficulties to find proper solutions.

<sup>23</sup> It was later transcribed and printed in *The American Economic Review*, Volume XXIX, Number 1, Part 1, March 1939, and reprinted by courtesy of the American Economic Association and the author. All extracts quoted in the text come from that transcript.

*“This is the essence of secular stagnation – sick recoveries which die in their infancy and depressions which feed on themselves and leave a hard and seemingly immovable core of unemployment”.*

For Hansen, a period of secular stagnation is a protracted period of slow growth that results mainly from falling population growth, which usually entails low aggregate demand, and a tendency to save rather than invest. He also argues that only an economy with strong and healthy levels of investment could be able to maintain full employment. The role of investment is also central in Hansen’s argument, relating it very closely with economic growth and prosperity.

For Hansen, starting with an historical analysis – mostly for the US case, though it could be extrapolated to other countries – there were three key factors especially important for achieving the adequate levels of investment: 1) inventions, 2) the discovery and development of new territory and new resources, and 3) the growth of population. Hansen argues that these three factors, either alone or in combination, are which really help to open new investment outlets and thus causing a rapid growth of capital formation. The situation of these three factors in the analysis that Hansen makes of the situation of the USA, as it is discussed below, is the reason that will lead him to conclude that there aren’t enough incentives for investment to avoid a prolonged stagnation of the economy (Taylor, 2013).

During the twenties and thirties the rate of population growth was declining, with very low fertility rates, especially during the Great Depression. That caused Hansen to predict the stabilization of the population within one or two generations. Therefore, Hansen certainly considers that point 3) – from the three key factors he had announced before – had stagnated. In the thirties, the US had already established its defining borders, so it was not able to expand or discover new territory in the way it did for the major part of the last two centuries. Hence, point 2) was already out from the equation. Thereby, Hansen argues that only a higher level of technological innovation – which could lead to more new inventions – could help to find the private investment opportunities adequate to maintain full employment. Yet, Hansen is also skeptic about the path of innovation; he believes that technological progress had slowed in the 30’s so that a new era of groundbreaking inventions – as it was the 19<sup>th</sup> century – was highly improbable<sup>24</sup>. Thus, Hansen does not believe that any of the three essential drivers of investment that could help to boost economic growth had enough force to consolidate the recovery and return soon the economy back to full employment (Taylor, 2013).

*“It is my growing conviction that the combined effect of the decline in population growth, together with the failure of any really important innovations of a magnitude sufficient to absorb large capital outlays, weighs very heavily as an explanation for the failure of the recent recovery to reach full employment”.*

A very interesting point in the argument made by Hansen is about the effectiveness of monetary and fiscal policy as providers of long-lasting solutions. He is skeptic about the role that monetary and fiscal policy can have on fixing the problem the US is suffering from. Hansen is, hence, assessing the Great Depression from a structural (long-term) point of view; that is to say, the causes are not merely conjunctural – that’s why fiscal and monetary policy are unable to fix the underlying problem –. Therefore, a more radical approach is needed.

This debate about the effectiveness of conventional policies is completely in vogue nowadays, as economists try to discuss about the causes of the Great Stagnation and how strong growth can be achieved

<sup>24</sup> In retrospect, it is easy to see that Hansen was wrong about the notion he had that technological innovations could have stopped during the 30’s. Alexander Field wrote a book in 2012 (Field, 2012) where he argued that it was in fact the opposite of what Hansen thought what really happened during the 30’s; namely, that there was actually a big technological growth and innovative spirit during that decade. “At a macro level, Field points out that essentially the same number of people were employed in 1941 as in 1929, using what seems to be the same value of capital stock, and yet real output was one-third or more higher in 1941 than in 1929 – implying substantial productivity growth even with the period of the Great Depression taken into account. If one just looks from 1933 to 1941, real U.S. GDP gained 90% over those eight years. At the micro level, Field points to high and rising R&D investment during the 1930s, dramatic improvements in roads and rail, and a long list of technological improvements in areas like chemicals, electricity generation, cars, planes, and many more” (Taylor, 2013).

and the level of unemployment can be lowered. Hansen was indeed skeptical about the fact that lower interest rates could encourage the high levels of investment that were needed to return to a level of full employment. This was regarding the monetary front. Yet, although he favored a fiscal expansion – through tax cuts and increased government expending – in order to tackle some of the worst problems associated with the Great Depression, Hansen also worried that continual rises in government debt and long-lasting deficits could be troublesome, becoming a burden for the economy:

*“Public spending is the easiest of all recovery methods, and therein lies its dangers. If it’s carried too far, we neglect to attack those specific maladjustments without the removal of which we cannot attain a workable cost-price structure, and therefore we fail to achieve the otherwise available flow of private investment”.*

Furthermore, Hansen was not only skeptic about the effects of monetary and fiscal policies on steering the US economy during the Great Depression, he was even very cautious regarding the benefits of monetary and fiscal policy applied to the problems derived from the Great Depression. In fact, for Hansen the late 30’s were the aftermath of the Great Depression<sup>25</sup>. That’s why Hansen’s theory focused more on trying to boost long-run growth through increased investment rather than using monetary and fiscal policy which impact the short-run and boost cyclical growth.

Finally, a core concern of Hansen regarding the US economy during the thirties was how to make investment sufficiently attractive for firms to invest expecting large profit opportunities (*“The problem of our generation is, above all, the problem of inadequate private investment outlets”*). Hansen thought that easing the tax and regulatory burdens – as well as other structural changes – may have an impact over encouraging investment.

*“[...] a vigorous recovery is not just spontaneously born from the womb of the preceding depression. Some small recovery must indeed arise sooner or later merely because of the growing need for capital replacement. But a full-fledged recovery calls for something more than the mere expenditure of depreciation allowances. It requires a large outlay on new investment, and this awaits the development of great new industries and new techniques. But such new developments are not currently available in adequate volume [...]”.*

As can be seen, Hansen presents an interesting set of ideas and concepts underpinning his secular stagnation hypothesis to explain the effects of the Great Depression. As it is well known, the onset of World War II consolidated the growth in the US through the war effort and the secular stagnation hypothesis is forgotten in the following decades of strong economic growth in the developed world. It is in this crisis – in fact the most important one since the Great Depression – when this old hypothesis has come back.

### **3. The return of the secular stagnation hypothesis and its context**

This section tries to explain the context that has led to the return of the consideration of a secular stagnation. Here is a brief explanation of the change of political, institutional and economic paradigm occurred in the eighties, what this change meant for a large number of developed economies (financialization) and how all this great change led to the 2008-09 financial crisis. It is within this context that Larry Summers rescues the old idea of secular stagnation, although in this case adapted to the current situation. This section ends the exposure of the context in which the idea of secular stagnation has developed. In the following parts this idea of secular stagnation will be thoroughly analyzed and discussed.

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<sup>25</sup> In the late 30’s the American economy was already on the road to recovery: “But current dating of business cycles (see NBER (2010)) suggests that that the Great Depression ended in March 1933. After a few years of fairly vigorous recovery, the Federal Reserve, chasing a premonition of a shadow of a ghost of possible inflation that no one else could see, decided to raise interest rates, triggering a severe recession starting in May 1937 that lasted through June 1938. Field and others have argued that the U.S. economy was on a strong and healthy path of recovery before and after the Fed-induced recession of 1937-38” (Taylor, 2013).

### 3.1. The financialization of capitalism

The Global Financial Crisis cannot be understood or explained without looking at what happened in the previous thirty years. Throughout the seventies and even before there was a profound intellectual shift in academic economics which finally led to a more wide intellectual shift in economic policy-making. This change was carried out by different economists from different schools, but especially it was carried out by monetarists, whose more visible head was economist Milton Friedman and his School of Chicago, in the US, from where it spread to other parts of the world. To begin with, it's important to give a definition of financialization: "Financialization refers to the increasing importance of financial markets, financial motives, financial institutions, and financial elites in the operation of the economy and its governing institutions, both at the national and international levels" (Epstein, 2002).

#### 3.1.1. The 80's political and economic change

The political change that occurred during the first 80's was in great part triggered by the economic situation of the US during the 70's and the incapacity of policy-makers to fix the economic problems that this country – and others – was suffering. The 70's was the decade of stagflation in the US, but also in other countries like the UK. Stagflation is a term used to describe a situation where the inflation rate is high, at the same time that economic growth slows down and unemployment rises. Some of the bewilderment that this situation produced was due to the fact that mainstream economic thought had not predicted that such situation could happen and there were no clear solutions to solve it. In the decades of great economic growth that followed the Great Depression, Keynesian macroeconomic theory was dominant in the academy and also in policy-making. The kind of Keynesianism more widely used since the end of WWII and the late-1970s regarded inflation and recession as mutually exclusive, with their relationship being described by the Phillips curve<sup>26</sup>. The old economic consensus – overwhelmingly Keynesian – seemed no longer useful to give proper responses to the problem that was being posed.

It was in this environment where the economics profession shifted from a mostly Keynesian perspective to a monetarist one, especially in the US and the UK. The new theories that were developing gave clear answers to the question that were being formulated, especially in order to solve the 70's crisis and, thus, to lower the all-time high inflation that the US was suffering. This new ideas<sup>27</sup> were well received by the new elected conservative governments of Margaret Thatcher in the United Kingdom and Ronald Reagan in the USA, completely changing the economic and political framework that had existed so far. Thereby, the great economic shift was boosted by also a big political shift<sup>28</sup> in these major countries, from where they thereafter they influenced policy making in a broader way throughout the world<sup>29</sup>.

<sup>26</sup> The Phillips curve represents the relationship between the rate of inflation and the unemployment rate. The empirical development of that curve had among its most prominent precursors A. W. H. Phillips and his study of wage inflation and unemployment in the United Kingdom from 1861 to 1957. Phillips found a consistent inverse relationship: when unemployment was high, wages increased slowly; when unemployment was low, wages rose rapidly. See more here in Hoover (n.d.)

<sup>27</sup> The groundbreaking economic program of Ronald Reagan was called Reaganomics, and "it was the most serious attempt to change the course of U.S. economic policy of any administration since the New Deal. 'Only by reducing the growth of government', said Ronald Reagan, 'can we increase the growth of the economy'. Reagan's 1981 Program for Economic Recovery had four major policy objectives: (1) reduce the growth of government spending, (2) reduce the marginal tax rates on income from both labor and capital, (3) reduce regulation, and (4) reduce inflation by controlling the growth of the money supply. These major policy changes, in turn, were expected to increase saving and investment, increase economic growth, balance the budget, restore healthy financial markets, and reduce inflation and interest rates" (Niskanen, n.d.). At bottom, Ronald Reagan simply applied an expansionary fiscal policy, and his initial program was far more ambitious than what they finally came to do.

<sup>28</sup> In 1979, Margaret Thatcher was elected prime minister in the UK, the first woman elected as prime minister and the first woman in front of the conservative party. Two years later, in 1981, Ronald Reagan was elected as president of the US. Both had an agenda of economic reforms that broke with the old consensus and whose main objectives were returning the US and the UK to a path of low and stable inflation, creating growth, lowering the unemployment rate while shrinking the state wherever it was possible, with the exception of the military.

<sup>29</sup> This article states the important role of FED Chairman Paul Volcker in lowering unemployment from all-time highs to around 2%: "On Oct. 6, 1979, Fed Chairman Paul Volcker took dramatic steps to rein in the runaway inflation that had been sapping the strength of our economy since the mid-1960s. Without his bold change in monetary policy and his determination to stick with it through several painful years, the U.S. economy would have continued its downward spiral. By reversing the misguided policies of his predecessors, Volcker set the table for the long economic expansions of the 1980s and 1990s" (Poole, 2005).

In the following subsections, the study will focus in the profound change in economic thought and its main features and aspects to consider. Although this economic revolution was mainly driven by another political change, the truth is that many of the policies that were later applied by Reagan, Thatcher and others had already been argued and developed within the academia in the past decades, although many times remaining in a marginal situation. Many of these policies had certainly impacts in many areas of social life, but it's especially important to analyze here the impact they had over the economy. One of the main theses in this regard will be exposing the idea of an increasing "financialization of capitalism" on a global scale, its relation with the Global Financial Crisis and its impact over the way the current economy functions. This "financialization of capitalism" boosted by the economic shift in monetary and fiscal theory – in economic thought in general – serves as a toehold to understand clearly the long-term causes behind the Global Financial Crisis – to develop the broad picture –, and to shore up the causes to explain the following Great Stagnation that in the next part are exposed.

### 3.1.2. Financial deregulation

Financial deregulation was a very important aspect derived from the increasing financialization of capitalism during the 80's. In fact, the financialization of capitalism – which refers to the fact that the financial sector heavily increased its share over GDP in many developed economies<sup>30</sup> – would have not been possible without a total overhaul of the way governments regulated the financial system since the Great Depression, (it is interesting that was another major financial crisis the one that sparked the Great Depression, so that many regulations that in the last thirty years have been removed came from the 30's response to the Great Depression). Sometimes the euphemistic term "financial innovation" is used to explain the wide number of changes in institutional arrangements that have allowed financial institutions of different kinds to pursue operations that were too risky<sup>31</sup>, that implied a big risk to the system or merely to expand their activities even far from a rational and stable viewpoint, for themselves, for the financial sector and, ultimately, for the overall economy<sup>32</sup>. It's worth saying that one of the effects of this increasing financialization has to do with the skyrocketing of debt<sup>33</sup> – especially of mortgages, which sparked several housing bubbles in many countries –. In short, this process of deregulation – mainly applied to finance – can be defined on a general basis as "the elimination of proper oversight on financial institutions and efforts (Gokay, 2009)".

## 3.2. The 2007-08 Financial Crisis

If the Great Depression entailed a complete paradigm shift from a political, economic, intellectual and social point of view in modern history and helped to shape a new world that arose from the ashes of the World War II, the 2008 Financial Crisis has in turn entailed another new paradigm shift, also from a political, economic, intellectual and social point of view<sup>34</sup>. The economic consequences are far from having been correctly tackled, but even today the majority of people are still not really aware of

<sup>30</sup> Since the 50's the financial sector's share of GDP has grown steadily. See Lahart (2011).

<sup>31</sup> And it was encouraged the kind of "spirit" that Alan Greenspan, Fed Chairman during nineteen years, called "irrational exuberance", expression taken from the economist Robert Shiller, who used it to express what was happening in the US housing market during the 2000's.

<sup>32</sup> The problem has not only been few regulation – through the previous period of financial deregulation – but bad regulation. Freddie Mae and Fannie Mac were indeed GSE's (government sponsored enterprises). Besides, new regulation that come after the 2008 financial crisis as part of the Dodd-Frank Act still allows some risks that have not been solved ("banks too big to fail") and some regulation was even not taken into account (reintroduction of the Glass-Steagall Act).

<sup>33</sup> About deregulation and the increasing share of finance over GDP: "The share of financial services in the GDP of the US surpassed that of industry in the mid-1990s. From 1973 to 2008 the portion of manufacturing in GDP fell from 25 % to 12 %. The share represented by financial services rose from 12% to 21%. [...] the Financial Services Modernization Act of 1999, known as the Gramm-Leach-Bliley Act, repealed the banking-activity restrictions of the Depression era Glass-Steagall Act that separated commercial and investment banking to control speculation and protect bank deposits [...] By the end of the century, the level of personal borrowing in America rose to the record level, 9% of Gross Domestic Product" (Dicken, 2007, 379-409).

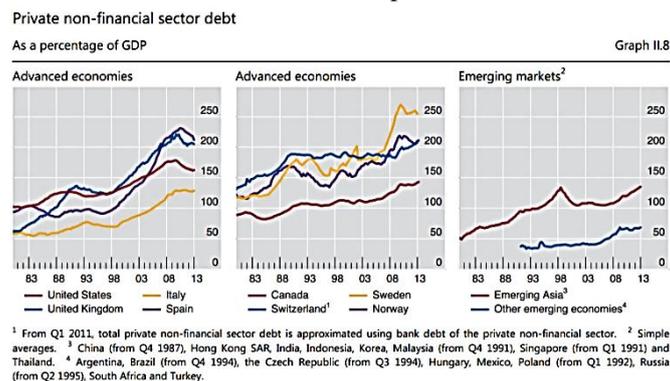
<sup>34</sup> This fact explains how after the crisis many schools of economic thought that did not had an important prominence in public have gained importance some of them reemerging with strength (see, for instance, the Austrian School of Economics and Post-Keynesianism). Other schools have developed since the beginning of the financial crisis in order to give answers to the questions posed and solutions to the existent problems (see, Market Monetarism and New Monetarism). All these schools, despite their methodological and theoretical differences, agree on pointing out that the Financial Crisis has entailed a deep paradigm shift.

which are the social and political consequences that this crisis and the subsequent years of stagnation that have followed might have exerted over our societies<sup>35</sup>.

The IMF, back in 2008 but also in 2009, already announced that: “*we are in the worst financial crisis since the Great Depression* (Stewart, 2008)”. Certainly, the 2008 Financial Crisis has been the worst financial shock at least since the Great Depression. And as the previous one, this Financial Crisis also had international effects (although the effects have been more noted in developed economies, especially the aftermath of the crisis) that were felt throughout the whole globe, although it firstly began in the US. Even so, the 2008 Financial Crisis was only the prelude to a major economic recession, what has been called the Great Recession. It’s true that officially there was only a Great Recession for 2009, if the IMF criteria on global recessions is about to be followed – where is required a decline in annual real world GDP per-capita (Purchasing Power Parity weighted) – and that some countries began already to grow, though weakly, during the year 2010 (some European countries fell into a second recession in 2011 due to, mostly, a bad ECB decision<sup>36</sup>). Yet, the effects of this economic downturn are still having a continued influence in 2014, seven years after the first sign of weakness in the American economy, and although the first Recession may have been overcome, many economies have entered in a new stage of stagnation, with weak growth and high unemployment (or what has come to be called “the Great Stagnation”).

Like the Great Depression, one of the main aspects for considering the Great Recession as the worst economic and financial crisis in the second half of the XXth century and the beginning of the XXIst is that it heavily affected the entire world economy. The growing financialization of capitalism that has been explained above helped to internationalize the risks and instruments that were being created mostly in the US, and by the first time, a crisis which began firstly in the US – mainly due to a real-state bubble – , rapidly spread throughout the world<sup>37</sup>. This aspect also expanded the worst consequences of the subsequent economic crisis, insofar as the ties between countries and their economies grew so big and strong during the last decades (globalization) that a shock in one economy of the globe can affect another economy tied with it that, however, can be in the other side of the world. This situation was amplified by the fact that it was the US, which is the biggest economy and the most important one in the world in terms of size, the one where the financial crisis began, thus affecting more easily but also more harmfully many other economies with which it had close relations.

Figure 1: The dramatic increase in debt over the past three decades [source: BIS (2014)]



<sup>35</sup> “Martin Wolf, chief economic commentator of the Financial Times, was saying that ‘I now fear that the combination of the fragility of the financial system with the huge rewards it generates for insiders will destroy something even more important – the political legitimacy of the market economy itself – across the globe.’ The same point was expressed by Ángel Gurría, Secretary-General of the OECD: ‘the market system is in crisis’. ‘What we are seeing right now looks like a very slow train wreck,’ says James Boughton, the historian of the International Monetary Fund and Assistant Director in the Policy Development and Review Department of the IMF. Alan Greenspan, the former boss of the Federal Reserve, calls it the crisis that happens once in a century” (Gokay, 2009).

<sup>36</sup> In 2011, when the European economy was healing, Trichet, who was at that time the ECB governor, decided to raise rates to protect European economies from a supposed unexpected rise of inflation. This decision had incredibly negative effects over the majority of EMU economies, many of them falling into a recession again. See more in Scott Sumner (2014a).

<sup>37</sup> Being a clear example German’s Deutsche Bank, who recently settled an agreement with the American government to pay a huge fine (Goldstein, 2013).

Depending on the policies that the different government imposed to fight the worst consequences of the crisis and depending on the exposure of national banks to mortgages and the underlying economic situation, the crisis affected more heavily some countries than others<sup>38</sup>. Even though, as it has been said above, the effects were felt all over the world, which is clearly exemplified by a global meltdown and the restlessness of all world leaders on trying to fix the crisis. The outbreak of the U.S. subprime mortgage crisis was indeed the tip of the iceberg of the large amounts of debt that had been gathered by households and firms for the past decades. This same accumulation of debt happened in Europe too, magnifying its consequences through the sovereign debt crisis which put Europe in the brink of collapse. Among other world imbalances that remained below the surface during the years previous to the Financial Crisis can be counted what Bernanke called the savings glut (that will be explained in depth in the causes' section), the weakness of the labor force and employment creation, stagnated productivity, trade imbalances, etc. It's also true that at the same time that occurred the financial crisis outburst, many other factors helped to make the crisis worse. In this regard, there was what can be called a concatenation of factors which together were disastrous for the economy. Among them, can be counted like economic deregulation, which reached its limits during the real-state bubble; high prices of raw materials due to high inflation<sup>39</sup>, the overvaluation of these products, worldwide energy food crisis, and the threat of a recession worldwide as well as a loan, mortgage and market confidence crisis. All these factors together certainly helped to make the crisis worse.

Even today, these same causes that were behind the great pain suffering by the economies during the first years after the Great Recession are still far from having been solved and, in fact, many of the solutions which may be adequate to solve some of these problems are indeed counter-productive and some of them inhibitors of growth and helpers of the kind of stagnation many economies are immersed on nowadays. Hence, the problems are many and the solutions few, just like happened during the Great Depression. We've also seen that we don't really know everything about the economy, how it works and the forces that move it.

### **3.2.1. The US subprime crisis as the immediate crisis**

The US 2008 crisis can be assessed as the immediate consequence of the kind of economic development that took place in major and developed economies since the 80's. This process of ever increasing financialization of the economy that has been exposed in the last section, in some way led to the kind of excesses that later allowed such a financial turmoil and, then, the plummeting of the real economy, which was very tied with regards to finance<sup>40</sup>. Yet, this financial crisis also completely reshaped the world of finance and investment banking. While previously it has been analyzed the underlying causes – or the essential causes – that led to this crisis, here two of the immediate or more direct causes that helped to unleash the financial turmoil of 2008 are going to be exposed and discussed, although a big part of these causes were already developing some years before (the majority of less direct causes are analyzed in the causes' section). 2008 was the year when the financial economy arrived to its limits. There is almost total consensus that what really created and triggered the financial crisis in the US was the mortgage bubble, considering all their implications and ramifications. Although this analysis focuses mainly in the US situation, the truth is that the US certainly internationalized its financial product throughout the world. That's why although the mortgage problem was located in the US, the consequences were felt all over the world, especially in Europe. Or, in other words, without a big crisis in the US, the world and the majority of countries would have not suffered such bad effect.

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<sup>38</sup> Australia, for example, was much less affected by the crisis than most developed countries. See more in Dobbie (2009).

<sup>39</sup> This very much explains why took so long for Fed members in their FOMC meetings throughout 2008 to reduce interest rates – with a crisis already on track under – the fear of boosting even more the inflationary tendencies due a rise of oil and other raw materials. This – not giving a proper and fast response to the crisis – was a fatal decision that heavily affected the economy. David Glasner (2014) explains how this anti-inflationary fear helped to make the recession worse off.

<sup>40</sup> As it was highlighted by the urgency of policy makers in rescuing AIG upon learning that its bankruptcy could result in the paralysis of the American economy, due to the close ties that AIG had with major corporations such as General Electric and General Motors.

### 3.2.2. The 2007-08 Financial Crisis chronology

The first indications that displayed the hints that a big crisis was about to happen appeared in January 2008<sup>41</sup>. Yet, the economy had already suffered from a kind of cooling in 2007, and the housing market showed also sign of weakness in 2007. That was exemplified through the fact that a number of American and European banks had declared massive losses in their 2007 end of the year results. The year 2008 was simply the year where everything came to look worse and worse. On 15 January, for instance, there was news of a sharp drop in the profits of the Citigroup banking; this led to a sharp fall on the New York Stock Exchange. During that time investors began to worry, though the economy didn't seem to have noticed the consequences yet, neither the financial sector as a whole. On 21 January, however, a spectacular fall in share prices was another signal that the financial economy was not doing fine, and this same fall occurred in all major world markets, followed by a series of collapses. This showed that the problem was not American or European, but global. In fact, one of the problems of the crisis was that not one was really aware of the size of the mortgage securities market.

The turning point was without any doubt the Lehman Brothers' crash, which was allowed by the federal authorities, who never would have imagined the consequences that letting Lehman falling would have created. Sometime before, in March 2008 the US had bailed-out the investment bank Bear Stearns. And in September 2008 (the 6<sup>th</sup>) the federal government also took over Freddie Mac and Fannie Mae, rescuing both. Yet, and just some days later (the 15<sup>th</sup>), Lehman Brothers was denied to have a federal government bail-out. This was in part due to the public resistance that the previous bail-out had created. During this same month, apart from the bankruptcy of Lehman Brothers – which was a 158-year old investment bank –, many other banks were in a critical situation. The federal government also had to take over the stock-broking firm and investment bank Merrill Lynch, while two big investment banks like Goldman Sacks and Morgan Stanley sought banking status in order to receive protection from bankruptcy. This week was probably the most critical week in the economic history of the US and in part the worst week in the world economy. It was also during the same weeks, when the remaining four investment banks on the Wall Street all went under in one way or another.

It was then when, to stop more collapses, to avoid a harmful meltdown of the whole and world economy and to ward off total economic catastrophe, the US government made its most dramatic and extensive interventions in financial markets since the 1930s. Federal officials decided that they couldn't let the situation alone and decided that was about time to intervene and trying to rescue the whole financial sector, despite the opposition of part of the population and using tools that in some cases were not totally legal or constitutional (Jeffrey, 2009). Although the financial crisis was incredibly severe and the US economy and by extent the world economy was on the brink of collapse, the federal government was brave enough to intervene in the markets and was only through the infusion of hundreds of billions of dollars into the US banking system (mostly through the Emergency Economic Stabilization Act of 2008, which authorized the United States Secretary of the Treasury to spend up to \$700 billion to purchase distressed assets, especially mortgage-backed securities, and supply cash directly to banks), coinciding also with equally colossal and important interventions throughout Europe – the US and European officials were in permanent contact during these days –, that avoided an entire crash of the world's financial markets and by extent avoided what would have probably been the total collapse of the capitalist economy, with all the social and political problems that this would have entailed.

### 3.2.3. The mortgage market and the housing bubble

Very briefly we must explain here how the mortgage market that was behind the financial crisis<sup>42</sup> worked. It can be said that the combination of debt and mortgage-backed securities was the direct cause

<sup>41</sup> For a deeper understanding, the St. Louis FED (FRS, 2010) has a very extensive and complete timeline with all the major facts that occurred during the Financial Crisis. Here only a brief summary of the most important facts is done.

<sup>42</sup> For longer explanations, see Wall Street Oasis (n.d.) or the documentary "Inside job". Ferguson, C. (Director). Ferguson, C. (Writer). (2010). *Inside job* [DVD]. US: Sony Pictures Classics.

of the crisis. In fact, since the end of IIWW, house prices had been steadily growing, although with fluctuations, the long-term trend had been upwards, with a special rise since the 80's. That house prices began to rise much more since the 80's has a lot to do, again, with the new shift in economic thinking and what we've called before the financialization of capitalism. This is so because until the 80's US mortgages were an untapped asset and thereafter investors and financial institutions noticed that they could exploit this market and get huge profits<sup>43</sup>. The exploitation of the mortgage market – being houses a basic need of society – has been a keystone and a very visible feature of the development of major developed economies in the last decades. This is not something that happened only in the US; many other countries around the world pursued or allowed certain policies to boost mortgage speculation and housing bubbles, in many cases creating a false wealth effect has been shown to be inconsistent and weak when house prices began to fall. This is not something hazardous. In Spain, for instance, and also since the 80's, policies to enhance housing construction above population necessities in order to create a housing bubble which would have the direct consequence of create short-term wealth – but long-term instability – and lots of revenues<sup>44</sup>.

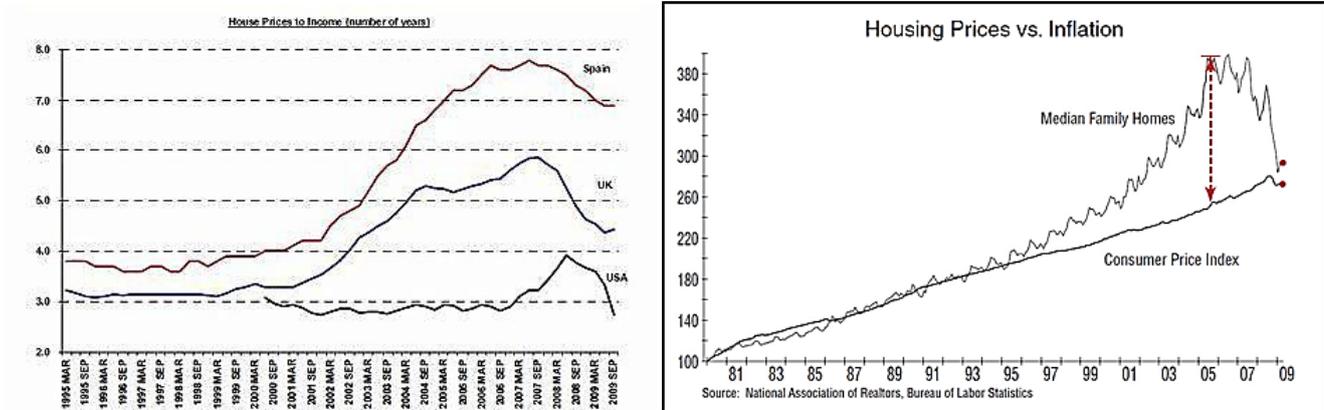
Starting in the late 90's and the first 2000's, there was a big rise in the issuance of bonds backed by mortgages, which was called “mortgage-backed securities (MBSs)”. MBSs consist essentially on lending money to a home buyer or business. An MBS is a way for a smaller regional bank to lend mortgages to its customers without having to worry about whether the customers have the assets to cover the loan. With these mortgages, banks acted as middleman between home buyers and the investment markets. Investment banks took a big group of mortgages from different home buyers – in their majority people who had not enough assets to assure that they would pay for this mortgage – they packed them and then the rating agencies had to punctuate this union of many different mortgages that were packed in the same “box” (taking the unsellable tranches of lots of MBS's, repackaging them and afterwards selling this new created product was called CDOs or collateralized debt obligations). In the majority of cases these mortgage boxes (or CDOs) were sold with an AAA, the maximum rating, so that investors and buyers of mortgage backed securities had the conviction that they were buying a safer asset. These types of securities were also commonly used to redirect the interest and principal payments from the pool of mortgages to shareholders. The problem arrived where many mortgage buyers began to default on the pay of their mortgages and when prices stop rising. Then, investors began to ask what was exactly these CDOs and many of them began to be suspicious and skeptic of these products. This fact created a situation of financial panic that resulted in the financial crisis, insofar as many investment banks had bought many of these financial products. Apart, other companies like insurance companies and manufacturing companies have also bought these or protected these products so the crisis eventually affected the whole economy, also globally because these product were sold and bought in a global scale (that explains why government officials, investors and financiers panicked, they did not know exactly how much CDOs and MBSs they had bought and which these products were really about).

The figure on the left shows how house prices to income rose since the 90's (and in the US especially since the early 2000's) in three major economies as are Spain, the US and the UK, arriving to their peaks in late 2007 and then falling sharply. This also shows the global tendency to exploit the housing market as a way to make huge profits with what is a basic need for the population. The second figure shows how until 1995 there was a very clear correlation between the CPI and Housing Prices, which in this year broke this correlation and house prices rose alarmingly.

<sup>43</sup> “Traders at Salomon Brothers and Drexel Burnham Lambert were looking to expand the bond market and they discovered that the steady stream of payments from US mortgages could be restructured into bonds and then sold off to investors. Prior to this, investors had no access to the US mortgage market other than by buying real estate or investing in construction companies, which was suboptimal and did not necessarily give the correct exposure to house prices”. (Wall Street Oasis, n.d.).

<sup>44</sup> Spain and South Korea have been often compared in the way each of these countries chooses different economic models in the late 70's. The consequences of these – mostly political – decisions are absolutely evident nowadays (see more in Guillen (2001)). As a matter of fact, just notice that “Spain was the eighth industrial power in the world in 1979, after thirty years it is the seventeenth” (Blyth, 2013, 50-52).

Figure 2 and 3: House Price to income (number of years) and Housing Prices Vs. Inflation [source: Wisdom (2013) and BLS (2014)]



As it has already been said before, this financial crisis did not come and did not go alone. The collapse of the financial economy was matched up by the decline of the real economy. This implied the collapse of lots of companies that were not related with the financial sector, the rise of unemployment and a sharp slowdown in economic growth. Only when financial markets were more or less controlled, government officials had to focus in the real economy and on thinking how to allow the worst consequences coming from the financial crisis to affect the real economy (or “main street” as it’s sometimes dubbed). This was the task of a new president, Obama, who since 2009 had to try to boost the real economy, either by stimulating it through the fiscal side (American Recovery and Reinvestment Act 2009) or through monetary stimulus (Federal Reserve asset purchasing programs and forward guidance) or both. Nowadays, although the economy seems to have been stabilized and many economies have returned to growth, the economy is still in an unstable equilibrium, far from a real recovery and very likely to get into trouble again. Hence, the aim of this study is trying to explain and expose what could be the causes that after more than four years since the Great Recession officially ended unemployment is still too high, inflation remains low and growth has not still reached previous pre-crisis levels. That is to say, trying to explain why the economy seems to be trapped in a period of tough stagnation. Maybe with the exception of the 30’s recovery, this is the crisis where countries are having a harder time to get out of it. The world just appears nowadays headed for a period of inevitable economic stagnation, being this situation even clearer in many European countries, in part not only for the situation in itself but because of the policies that have been taken, which have not been always the most adequate.



## PART II: ANALYSIS

In this part, the concept of “secular stagnation” shall be definitively and systematically defined, considering and discussing the most important ideas that help to build this definition. This concept will be defined taking into account the present situation of developed economies and making clear reference to what has happened both before and after the 2008 financial crisis. Then, the current study is going to expose, analyze and discuss which might be the causes behind this period of low economic growth, high unemployment and low inflation in the majority of developed economies. Firstly, each of the most probable causes that might explain what is happening in these same developed economies will be exposed and explained. Then, through a study of the data available, the investigation is going to assess the feasibility of each of the previously exposed causes in order to reach a conclusion about two main aspects: 1) Are we really suffering from “secular stagnation” (as defined above) and 2) which are the main causes (from all those exposed before) that could serve to give a proper explanation about the weakness of the current recovery based in the data-analysis. Also, in the same definitions’ section, the features, prospects and consequences that a period of prolonged stagnation may have over the economy will be explained, also assessing which kind of recovery has been developing since the financial crisis onset. The definition and analysis will also serve to distinguish a period of secular stagnation from the normal weak recovery that usually follows a severe financial crisis. Finally, the study will try to give some solutions to the problem – in the next part of the study – taking into account different perspectives and addressing the problem as directly as possible.

### 1. Definition of secular stagnation

An understandable, concise and systematic definition is a very important and necessary step in a study that analyzes the causes, consequences and prospects of “secular stagnation”, all the more due to the disparity of definitions that sometimes are used to refer to this concept.

One of the first systematic definitions of secular stagnation – if not the first – was proposed by economist Alvin Hansen in 1938, whose ideas have already been discussed in the first part. The definition that is given at the end of this section is personal in the way that “secular stagnation” is defined specifically, using an own criteria, although by considering some of the ideas proposed by different economists that serve to build a consistent definition. Ultimately, what I am going to do is giving an alternative but conclusive definition of “secular stagnation” in order to completely delimit the concept to make it more understandable for the discussion and analysis that then will follow. This definition will indeed be the starting point to later localize the problems, expose the possible causes and to delve more properly into the plausible solutions that might solve the problem. This is the general structure of the following part.

#### 1.1. About the terminology of the concept

To begin with, it’s interesting and useful to analyze the basic meaning of the words that, together, form the expression “secular stagnation”.

The central word in the expression is “stagnation” (noun), which comes from “stagnate”, an intransitive verb. On a general basis – not specifically referring to economics –, “stagnation” is defined as: *“the state or condition of stagnating, or having stopped, as by ceasing to run or flow”*; that is to say: something that is not flowing as it used to, or something that behaves “abnormally”, i.e. it does not have the kind of behavior it should have or it used to have the past. Stagnation can also be defined as: *“a failure to develop, progress, or advance”* or *“the state or quality of being or feeling sluggish and dull”* (Dictionary, n.d.). In other words, we’re referring to something that is not working properly, that is neither advancing nor receding, but just staying stalled, fixed, and stationary or, in the best cases, advancing or moving incredibly slowly with respect to what its real pace of movement or growth should be. It is really interesting to note that the word “stagnation” is also used in medicine, and it refers to *“the retardation or cessation of the flow of blood in the blood vessels, as in passive congestion”* or *“the*

*accumulation of a normally circulating fluid in a part or an organ*” (“Stagnation”, n.d.). Again, it’s easy to see how in medicine “stagnation” also emphasizes the fact that something – in that case blood – is not flowing properly, or not behaving as it should or used to. Another interesting implication that can be extracted from this medical definition is that this abnormal behavior is not positive for the organism; this behavior has a negative connotation. Thus, there is already a field where the word “stagnation” implies something abnormal and detrimental at the same time; or, at least, it’s not a positive or hoped state or equilibrium, but one harmful and unnatural.

These definitions are interesting in the way that they give us some meanings of a word that later was recovered to refer to an economic event or situation. As can be seen, the word “stagnation” is not in itself an economic concept; it’s simply a word that was later used to express or define something that was happening within an economy, probably using the metaphor of a pool of standing water, the original meaning in Latin.

Once the word “stagnation” has been analyzed on a general basis it’s also very important to properly define the word placed before: “secular<sup>45</sup>”. This adjective – “secular” – is actually the term that gives consistency and full definition to the expression. In reality, “secular” emphasizes the meaning of “stagnation”. The meaning of “secular” that is going to be used in that case is this one: “*Secular is when occurring once in an age or a century*”, “*existing or continuing through ages or centuries*” and “*of or relating to a long term of indefinite duration*” (“Secular”, n.d.). This definition stresses that “secular” means that something exists for a long period of time, that is persistent, that has even an indefinite duration or is immutable.

Somehow the expression “secular stagnation” can be considered a pleonasm inasmuch as “secular” is mostly reinforcing the meaning that “stagnation” already gives (something that is quiet, immovable, slow, etc.). This kind of redundancy is what certainly strengthens the whole expression and highlights the meaning. Thereby, when the two words are joined – “secular” and “stagnation” – the meaning that arises is one that refers, generally, to something that is not behaving or flowing correctly, being this situation or attitude permanent over time, usually indefinite and often carrying a high level of uncertainty about the consequences it can create in an “organism” (paraphrasing the medical definition) or in any other body affected by it.

## 1.2. What to consider for the definition

The task now is using the last definitions merely as a guide that may help to arrive to a precise definition of “secular stagnation”. Although the definition will resemble both the meanings implied by “secular” and “stagnation”, a slightly different approach is needed now. Some economic concepts, for instance, would be used within the final definition.

The most normally used definition of “secular stagnation” would sound something like this: “*Secular stagnation is a prolonged period of little or no growth in the economy. Economic growth of less than 2 to 3% annually is considered stagnation. Periods of stagnation are also marked by high unemployment and involuntary part-time employment. Stagnation can also occur on a smaller scale in specific industries or companies or with wages*” (“Secular Stagnation”, n.d. a)<sup>46</sup>”. It mainly defines “secular stagnation” considering economic growth, usually in terms of Real GDP growth per year.

<sup>45</sup> Barnejek, a pseudonym from an important financial analyst working in the City in London, recently said the following regarding the expression “secular stagnation”: “Next time when you hear someone saying ‘secular stagnation’ ask them to define the word ‘secular’. Alternatively simply say ‘go away!’” (Barnejek, 2014).

<sup>46</sup> The same entry also says how monetary stimulus and other measures were applied in order not to allow the economy from falling into a stagnation: “In late 2012, supporters said the Federal Reserve’s third round of quantitative easing was necessary to help the United States avoid economic stagnation. The central bank’s proposed asset purchases of mortgage-backed debt were expected to foster economic growth, bolster the housing market and improve employment prospects. The Fed also kept interest rates low as part of its plan to prevent stagnation”.

Another very useful definition – though a bit longer, but also more exhaustive – is the one given by the Financial Times Lexicon: “*Secular stagnation is a condition of negligible or no economic growth in a market-based economy. When per capita income stays at relatively high levels, the percentage of savings is likely to start exceeding the percentage of longer-term investments in, for example, infrastructure and education, that are necessary to sustain future economic growth. The absence of such investments (and consequently of the economic growth) leads to declining levels of per capita income (and consequently of per capita savings). With the reduced percentage savings rate converging with the reduced investment rate, economic growth comes to a standstill – i.e., it stagnates. In a free economy, consumers anticipating secular stagnation might transfer their savings to more attractive-looking foreign countries. This would lead to a devaluation of their domestic currency, which would potentially boost their exports, assuming that the country did have goods or services that could be exported. Persistent low growth, especially in Europe, has been attributed by some to secular stagnation initiated by stronger European economies, such as Germany, in the past few years*” (“Secular Stagnation”, n.d.). This is a much more complete definition of secular stagnation. Furthermore, it also explains which is the process by which a country or a set of countries might enter in this situation of “secular stagnation”, that as can be read above might be self-feeding.

Some important features and ideas can be extracted from the above definition:

(1) “Secular Stagnation” occurs in market-based economies and mostly in developed countries, or at least in countries with high per-capita income levels.

(2) Low growth for a prolonged period of time is crucial to understand secular stagnation.

(3) The importance of savings and investment in the dynamics of “secular stagnation”. In fact, low or weak growth is very much related with the level of investment and savings in the economy. This was indeed a point of concern in Hansen’s analysis, too.

(4) In the short-term (prices and interest rates are constant), with effective investment - which subsequently always equals effective savings – lower than planned investment, actual GDP is lower than the equilibrium GDP, and this situation is impossible to reverse if effective investment consistently falls below planned investment (“*economic growth comes to a standstill*”). In the event that planned investment would remain constant and equal to effective investment (equilibrium GDP), a lower level of savings would also reduce the equilibrium GDP.

With these two definitions, a fairly good first impression has been traced about what “secular stagnation” means from an economic point of view. In the economic debate in general, there exist two ways to understand or to approach the “secular stagnation” phenomenon. There is one first way for defining or understanding “secular stagnation”, which is exemplified by the two definitions above. Both definitions focus in a period of weak or low growth to explain the phenomenon. Or better said they focus on the idea that the growth rate of income or output will be slower in the future. Of course, this a more general approach, insofar as it’s not easy to define what we understand by low growth (in the first definition it is defined by less than 2 or 3% GDP growth. This is an adequate definition in the US case but each country would have its own “low” growth number with regards to the past trend). This first way, hence, focuses in the fact that growth is below the past trend – the “old normality” –, whether below potential or not. The comparison is carried out with regard to the past “normal” economic growth achieved by the same economy.

A second way to understand the phenomenon is that there will be a systematic tendency for aggregate demand to fall short of the economy’s potential output (Mason, 2013). This is the same than defining low GDP growth as GDP growth that falls behind potential. There are two main situations for this second way of understanding “secular stagnation”: one where full employment is maintained by permanently higher public spending, rather than lower interest rates – i.e. giving to fiscal policy a more

prominent paper than to monetary policy –; and a second situation – more consistent with a period of “secular stagnation” due to the visibility of the effects – where nothing closed the gap and output fell consistently short of potential; i.e. a situation where policy measures are or seem to be unsuccessful in reviving the economy. In this second situation an important feature is that aggregate expenditure by the private sector tends to fall short of the same economy’s potential output by a growing margin, as it has been explained above, in the fourth feature that could be extracted from the first definition given.

### 1.3. Building the outlines and delimiting the definition

An economy that suffers from secular stagnation shows very characteristic symptoms. This subsection details which are the most important consequences for an economy trapped in a secular stagnation and the most visible features to consider when assessing this situation. Many of these consequences are already visible in many developed economies; others are not yet entirely clear. What is exposed here helps to delimit the definition and highlight the most important aspects.

#### 1.3.1. “Secular stagnation” as “subnormal growth”, not as “subpotential growth”

Here, the first way to understand “secular stagnation” – the one about low growth related to the past “normal”, but not to potential output<sup>47</sup> – is which is, for several reasons, more interesting and useful for building the final definition. The first reason is because this first way somehow already includes what the second way stresses – growth falling behind potential –. Besides, the second way is slightly more focused in a shorter period of time, while the first might well be taking into account a longer time view<sup>48</sup>, insofar as it does not take into account potential output – or does not take it directly or explicitly – that in the long run may as well fall too. When it is said that secular stagnation means weaker growth in the future<sup>49</sup>, this is also implying that future growth will fall persistently behind potential, at least in the short run.

In the long run, it could happen that potential output –measured as potential GDP<sup>50</sup> – falls for several reasons<sup>51</sup> and the economy, while growing at potential, is doing so at a pretty slower pace than before, previous to being stuck in a period of “secular stagnation”. In fact, one of the most visible consequences that a situation of secular stagnation might have over an economy is that the rate of potential growth of that economy could be affected, as well as the natural rate of unemployment, both decreasing – sometimes sharply – its normal growth rate in comparison with the rate of growth previous to the stagnation of the economy.

<sup>47</sup> This idea was also very clearly exposed by Larry Summers during his speech: “And second, more than four years after the end of the downturn real output isn’t anywhere close to regaining its pre-crisis trend. On the contrary, it has fallen farther behind that trend. There has been no recovery in the share of population working. And there is little sign that central banks will be willing or able to raise short-term interest rates meaningfully above zero any time in the next few years” (see note 3 in Part I).

<sup>48</sup> “He [Larry Summers] introduces the idea of secular stagnation explicitly as an alternative to this view that demand matters only for the short run [...] The real content of secular stagnation, for Summers, is not slower growth itself, but the possibility that the same factors that can cause aggregate expenditure to fall short of the economy’s potential output can matter in the long run as well as in the short run. [...] Only in this new era of secular stagnation, do we have to consider the dynamics of an economy where aggregate demand plays a role in long-term growth” (Mason, 2013).

<sup>49</sup> Antonio Fatas also understand secular stagnation as “sub normal growth”, i.e., growth persistently below the trend: “Secular stagnation refers to the fact that some of the output losses during the crisis become permanent, the economy does not ever return to the previous trend” (Fatas, 2013a).

<sup>50</sup> The OECD defined it as follows in its Economic Outlook Publication: “Potential gross domestic product (GDP) is defined as the level of output that an economy can produce at a constant inflation rate. Although an economy can temporarily produce more than its potential level of output, that comes at the cost of rising inflation. Potential output depends on the capital stock, the potential labor force (which depends on demographic factors and on participation rates), the non-accelerating inflation rate of unemployment (NAIRU), and the level of labor efficiency” (OECD, 2014).

<sup>51</sup> In fact the objective of policy makers and central banks is to try to keep actual GDP around potential. While demand-side shocks mostly affect actual GDP – and that is why fiscal and monetary policy is used to try to avoid that these shocks affect actual GDP from deviating from potential GDP – potential GDP is mostly affected by supply-side shocks (mostly changes in productivity and population growth).

It's crucial to stress here that the importance is not in how potential output behaves<sup>52</sup>, but in how current or actual output growth behaves in comparison to what was considered “normal” or what “trend growth” in the past was. That is why in the first definition given in 1.1, it is considered that “secular stagnation” means growth rates of less than 2% or 3% although the economy might be growing at 1% and being in its potential. The issue is that the economy in that case would not be growing at the same path it used to grow and hence it would be stuck in a situation where growth is persistently lower than it was in the past. This is the key idea.

### 1.3.2. Unemployment, inflation, nominal interest rates and “secular stagnation”

Furthermore, “secular stagnation” cannot only be defined in terms of economic or output growth. If secular stagnation were only about growth, then there could be said that the economy has been stuck in a “secular stagnation” situation since at least the late seventies, insofar as growth now is certainly weaker than it was in the first twenty years after the Second World War. The problem is that under a period of “secular stagnation”, where growth remains weaker than it used to be in “normal” times, unemployment and inflation are also very important variables that have to be considered. A period of secular stagnation is thus one where the economy's growth rates are low while unemployment remains stubbornly high and inflation is below, for instance, central bank's inflation target (usually despite all the efforts made by central banks through different policies to get this inflation back to target). High unemployment means unemployment that is far above what could be the natural rate of unemployment. Besides, it remains there for a long time. In other words, it is an unemployment that over time has somehow become chronic, i.e. structural. Secular stagnation also increases the natural rate of unemployment of NAIRU.

Low inflation and, thus, low interest rates during a long period of time are two more consequences derived from secular stagnation. In fact, subnormal inflation is another defining feature of the secular stagnation concept. Low inflation is a sign that the economy is not working at potential and when its value is persistently low, it signals that the economy is working below potential. Meanwhile, low interest rates are indeed a sign that inflation is too low, because central banks lower interest rates in order to stimulate the economy, to try to raise inflation. If an economy suffers from a persistent rate of inflation below the central bank's target, then the same central bank will have to maintain low interest rates waiting the economy to revive and thus waiting for the inflation rate to reach its target; that is when interest rates will go up again.

Regarding monetary policy, a period of secular stagnation usually entails that central banks are prone to reach what is called the zero lower bound (ZLB), which is a situation where nominal interest rates have been lowered to zero and the central bank cannot do anything more to stimulate the economy using conventional policies – raising or lowering interest rates – and will find itself compelled for searching new tools (like QE, which is a program of asset-purchasing adopted by many Central Banks). The main problem of the ZLB is precisely that the central bank no longer can stimulate the economy using conventional policies – insofar as nominal interest rates cannot be lowered below zero – so that new discretionary policies will be needed. The effects that these policies can have over the markets and the economy are not clear, though. In fact, a period of secular stagnation is sometimes described as one where monetary policy is not sufficient to stimulate the economy; i.e. there is a “liquidity trap” and other policies beyond monetary one have to be used to stimulate the economy<sup>53</sup>. This assumption is, however,

<sup>52</sup> Although an economy within a situation of “secular stagnation” will probably see its potential output reduced over time. In the long-run the economy might even grow at potential, but a very low potential, far lower than what was the potential before the economy entered in this situation and obviously lower than the previous normal growth too. This is related with the concept of Hysteresis, which will be explained in the definition's section. This concept was first developed and exposed by Olivier Blanchard and Lawrence Summers in a 1986 paper discussing the European unemployment rate (Blanchard & Summers, 1986)

<sup>53</sup> “Secular stagnation involves the idea that the FED rate will be at the zero lower bound for a long time. A main point of the video is that the natural real rate of interest must fall as real GDP is pushed beyond its natural level” (Lambert, 2013).

highly debatable. Monetary policy has remained effective during this crisis, especially in those countries where its power has been stronger (Sumner, 2014b)<sup>54</sup>.

### 1.3.3. Negative real interest rates

Another very important economic feature which is much related with the understanding and definition of “secular stagnation” are real negative interest rates. The importance of this concept has been greatly underlined by Larry Summers in his IMF speech. He and many others after him have considered the main problem of developed economies nowadays to be real negative interest rates that remain higher than still a more negative natural real interest rate. Under current monetary – nominal rates already around 0 with inflation still remaining below 2% – and fiscal – reducing public spending and tax rises – conditions of most developed economies, it is fairly difficult to further decrease the real interest rate to equal the natural rate. An economy which has a negative real interest rate and which is unable to reach this low natural rate is an economy unable to achieve full employment, i.e. to work in its potential.

This idea is more thoroughly explained and discussed in the next section, where the probable causes of the “secular stagnation” will be analyzed. Just very briefly and to set the basics about the later discussion, the real interest rate is important because it is the interest rate that has been adjusted to remove the effects of inflation to reflect the real cost of funds to the borrower and the real yield to the lender<sup>55</sup>. The real interest rate is very important insofar as it is very closely related with returns on investment. Therefore, it is also very closely related with the second definition previously analyzed in section 1.1.

### 1.3.4. Massive increase in debt

An increasing level of debt can either be a cause or a consequence of secular stagnation. A weak recovery – or a stagnant economic period – indeed amplifies the debt problem, making it worse. This is so because less growth – measured, for instance, in GDP terms – means more debt ratio to GDP.

Even a constant level of debt in an economy whose GDP is decreasing means that the weight of debt over GDP increases. Nowadays, in many countries is happening that debt levels are increasing faster than GDP so that the burden of debt in these economies is increasing. Besides, a depressed or stagnated economy where unemployment is high means that governments will normally receive less revenue and these same governments will also have to deliver the same services and to increase the transfer if more people is unemployed. This leads to an increase in public debt, a situation that has happened in the majority of developed economies through the last years.

A situation of low inflation also exacerbates the problem inasmuch as the real value of debts increases<sup>56</sup>, making more difficult for household and firms to repay the debts. Therefore, this situation is self-feeding because less growth means that the debt ratio to GDP increases and governments have to get on more debt either to finance their expenditures or even to repay past debts. Only with higher growth rates – in that case it’s better to have higher nominal GDP – would it be possible to deal with these debt burdens and over time to reduce the burden of debt.

<sup>54</sup> In this article Scott Sumner also puts into question the idea that the Eurozone was in the Zero Lower Bound in the past when many economists claimed that it was. There is also a lot of debate about the real effects of fiscal policy and how monetary policy can offset any good effect of fiscal stimulus.

<sup>55</sup> The Fisher equation states that: “Real Interest Rate = Nominal Interest Rate - Inflation (Expected or Actual)”. A more practical explanation of this equation and the real interest rate: “The real interest rate is the growth rate of purchasing power derived from an investment. By adjusting the nominal interest rate to compensate for inflation, you are keeping the purchasing power of a given level of capital constant over time. For example, if you are earning 4% interest per year on the savings in your bank account, and inflation is currently 3% per year, then the real interest rate you are receiving is 1% (4% - 3% = 1%). The real value of your savings will only increase by 1% per year, when purchasing power is taken into consideration” (Investopedia, n.d. b).

<sup>56</sup> Under a deflationary situation, there is a transfer of wealth from debtors to savers. The effective cost of the debt goes up when the economy is suffering from deflation insofar as the currency buys more in deflationary times, although the debt payment that someone has to pay stays the same, so he is actually paying more. This tendency worsens the recovery because in situation where the debt levels are very spread among the population and are very high, deflation makes it harder for the majority of population to repay these same debts. This is certainly a problem in the Eurozone more than it is anywhere else due to the low inflation levels. Irving Fisher gave a name for such situation: “Debt Deflation scenario” (Fisher, 2014).

Furthermore, low growth would also further undermine the ability of governments to fulfill their promises for pensions and the health care systems of aging societies insofar as governments might find it difficult to finance themselves in the markets if these same markets consider that these countries – with ever increasing debt levels, high unemployment, low inflation and weak growth – are not strong enough to repay these same debt in the future. In short, a massive increase in debt – both public and private –, which makes the deleveraging process more problematic, is a direct result coming from a stagnant economy, especially after suffering a financial shock.

### 1.3.5. The importance of time

A definitive feature to distinguish a period of “secular stagnation” from another period of what could be called “conjunctural stagnation” (or what has always been referred in economics literature as “business cycles”) is time. “Secular stagnation” is defined by the long-term, by a period of time that is so sufficiently high that appears unusual and disturbing for economists, policy makers and the population. It’s certainly difficult to define what a “long period of time” is. Some consider it to be at a decade<sup>57</sup>, while others consider that less time is possible to begin considering the possibility of “secular stagnation”. The definition of what period of time can distinguish a sheer economic cycle from an unusual situation of “secular stagnation” is discretionary and it’s taken merely as a tool to help in the discussion and consideration of “secular stagnation” periods<sup>58</sup>.

### 1.3.6. There are both demand and supply-side causes

The secular stagnation phenomenon is essentially a problem of demand considering how Summers exposed it in his speech at the IMF. Even so, the causes of this phenomenon can either be demand-side causes or supply-side causes. In this study we’re going to assess “secular stagnation” from both a demand side view and a supply side view – and hence taking a more wide perspective than Summers –. “Secular stagnation” is a specific situation that, however, can have many causes.

Localizing, understanding and discussing these causes are the real aim of the work. A good analysis of what causes such a situation is the first and probably most needed step before trying to find solutions to the problem, one that our economies – and this also has and will be discussed – might be having. A broad view of the phenomenon is hence taken and although certainly some simplifications are usually needed, the analysis to make is aimed to be as exhaustive as possible, or at least, an analysis which could take into consideration the most important and discussed aspects.

### 1.3.7. The “L-shaped”

Before finally defining the concept of secular stagnation in the present study, it’s worth citing an interesting idea to call and exemplify the kind of recovery that has occurred since the onset of the financial crisis back in 2008; namely: the “L-shaped” recovery (Wapshott, 2013). This expression refers to one situation where a certain economy – in this case mostly referred to the US – is stuck in a rut of weak demand, low growth and low employment. This expression is quite useful inasmuch as it certainly gives a very good definition of the kind of situation that “secular stagnation” refers to. It refers to the same concept but using a different name. The “L” is a kind of visual metaphor which refers to a period where the economy is stagnated – horizontal bar – in comparison to the previous trend after a sharp fall – vertical bar –. This fall of growth (although can refer to other variables) can be due to a financial crisis or

<sup>57</sup> In the case of Europe, in 2013 Real GDP in the Euro area had still not reached the pre-crisis peak from 2007. If this situation is now compared with the Great Depression from the 30’s, also in Europe, in 1935 – also six years after the 1929 financial crack – Real GDP growth had not reached the previous peak of 1929. So in both cases we see a similar tendency towards a very slow recovery, which show us that at least five years and normally over a decade are a good way of defining the time for a “secular stagnation”. See Krugman (2013a).

<sup>58</sup> Secular stagnation has to be differentiated from a mere business cycle – a fluctuation that occurs over a long-term trend –. These business cycles usually last for around five to seven years and can be correctly tackled with conventional monetary and fiscal policies. On the contrary, it is also worth mentioning Kondratieff waves, which are long cycles of activity that can last for over 40 to 60 years. Secular stagnation, from a time perspective, should be placed in between these two cycles. Even so, while secular stagnation can have a lower limit – usually placed discretionary, as will be specified in the definition – it does not tend to have an upper limit.

any other shock whose most visible consequence is that the economy for several reasons is unable to return to previous levels in an expected time frame.

### 1.3.8. The perceived inefficiency of conventional policies

The fact that policy-makers are not able to revive an economy that has fallen in a Stagnation – that don't have to be secular at first – implies something important for the conception of “secular stagnation”: that policies aimed at reviving the economy usually do not give or do not seem to give the expected fruits, and these measures that theoretically should serve sometimes are not only deedless but also can arrive to be counterproductive (e.g. Monetary easing could create the conditions for future bubbles). Conventional policies are often a tool that serves well to steer the economy and to stimulate it during business cycles but which are clearly inefficient in situation where the economy is stuck in a long period of weak growth – stagnation – after an economic shock or any other cause. Even so, in a market economy, government policies serve somehow as a firewall, but the private sector will have to take over the private sector will have to take over and lead the recovery.

### 1.3.9. The thrift paradox

Under a situation of secular stagnation – that can be one where real interest rates are negative, there is not enough investment but too much savings – appears what has been called the thrift paradox. In a situation of secular stagnation is usually needed rising investment and encourage people to spend and consume rather than to let their money placed at the bank. The hoarding of money usually happens after a financial panic, where people prefer to save their money rather than to spend it, mostly due to uncertainty about the future.

The thrift paradox states that if everyone tries to save more in a situation when the economy is stuck in either a recession or in a weak recovery, aggregate demand will fall and this will in turn lower total savings in the population because of the decrease in consumption and economic growth. In short, this paradox, which is usually a clear consequence derived from a period of secular stagnation is that saving more is counterproductive and that this same savings in fact will eventually affect in a negative way savers. In such a situation “virtue becomes vice and prudence becomes folly<sup>59</sup>” – which is a moral judgment – because if usually saving is seen as something morally accepted as good and spending – even wasting – money as something even reprehensible, in a situation where the economy is depressed or stagnated, saving in excess is counterproductive for the economy while massive spending could arrive to be the best medicine for stimulating the economy, especially in a time of low interest rates<sup>60</sup>.

### 1.3.10. Bubbles are not enough to create an excess in aggregate demand

One other feature of a stagnant economy – or a consequence that a prolonged period of stagnation has over an economy – comes, paradoxically, from the analysis of the economy in the years before the crisis; that is, when the economy seemed to be working at full capacity, or in the presence of bubbles, should have overheated. Yet, and this is Larry Summers' first thesis (exposed in his speech): “*even a great bubble [prior to the crisis] wasn't enough to produce any excess in aggregate demand*”. In a time where a big bubble was going on, the economy was doing fine, but there was no big excess in aggregate demand; unemployment in many countries was low, but not excessively low; inflation remained well anchored and growth was not abnormally high. Therefore, the economy was not behaving as expected in a period of “irrational exuberance”, what leads to the conclusion that the stagnant trend of the economy already existed in the years previous to the crisis, although it was somehow offset by the

<sup>59</sup> “And as he also notes, in this situation [a situation of a stagnant economy] the normal rules of economic policy don't apply. As I like to put it, virtue becomes vice and prudence becomes folly. Saving hurts the economy – it even hurts investment, thanks to the paradox of thrift. Fixating on debt and deficits deepens the depression” (Krugman, 2013b).

<sup>60</sup> He extends on this idea also here: “But in a liquidity trap saving may be a personal virtue, but it's a social vice. And in an economy facing secular stagnation, this isn't just a temporary state of affairs, it's the norm. Assuring people that they can get a positive rate of return on safe assets means promising them something the market doesn't want to deliver – it's like farm price supports, except for rentiers” (Krugman, 2013b).

housing bubble<sup>61</sup>. This bubble should have led the economy to over-heating, but this was not the case. This trend has appeared more clearly after the 2007-08 Financial Crisis, but this does not mean it didn't exist earlier; certainly it could very well deepen its roots far in the past.

Borrowing and asset prices soared in the years previous to the financial outbreak. Even so, Summers points out that for the majority of key economic indices – capacity utilization, unemployment and inflation – the economy was not bumping up against its potential. On this basis, one can easily draw a very important conclusion; namely: during a period of secular stagnation even bubbles are not enough to create an excess in aggregate demand. In fact, bubbles might be now the only way to return to previous trends, but they don't seem to lead to any big excess anymore. If developed economies want to reach something near inflation, it seems that this situation can only be reached through the creation of economic bubbles<sup>62</sup>. Some economists have even gone further to assert that the same secular trends could go back as far as to the later years of the Reagan Administration, which is consistent with the changes allowed in order to push up a decreasing rate of profit allowing the financialization of the capitalist economy<sup>63</sup>.

So it is not only that the last bubble was not enough to create any abnormal excess in aggregate demand, but in the last decades there has not really been any surge in inflation and unemployment rates in many countries, although they have remained low for the majority of time, have not reached any especially low level. It's especially important to point out that during the last thirty years there has not been any inflationary pressure despite the same fact of having been living within a bubbly economic period, which should have pushed prices up insofar as aggregate demand should have risen further. This has not happened. Besides, the impressive increase in household borrowing should have pushed up inflation, which should have forced central banks to raise interest rates to placate inflationary pressures. Yet, nothing of this happened either; inflation has been low, as well as interest rates. Therefore, it can be argued that without these bubbles, the massive increase in debt and the process of financialization of capitalism – especially through the creation of new financial products – the secular trend would have been visible before<sup>64</sup> and had begun to be a major concern long before<sup>65</sup>.

A counterpart of this reasoning is the fact that the kind of discretionary and exceptional policies that now are needed to fix current problem and get the economy back to the trend, might also be the kind of policies that would help to create a future bubble that, just like in 2007-08, could again explode and leave the economy heavily damaged again. Paradoxically, if this situation is to be avoided, it is necessary not to implement too aggressive policies in both the fiscal and the monetary front in order to control the creation of future bubbles. Yet, under this circumstance it would be far harder to exit the current crisis, with all that this entails. Hence, there is a dichotomy between trying to stimulate the economy knowing that this could create financial imbalances, or doing more prudent policies knowing that the economy will find it much harder to recover. This situation can be shown through interest rates. If interest rates fall

<sup>61</sup> Which is supported by data: "In spite of too much investment in real estate and business capacity in the 1980s, 1990s and 2000s, conventional metrics suggest that the U.S. economy never overheated. Adjusted for population, real gross domestic product has grown more slowly in the past three decades than it did in the 30 years after the end of the Korean War. Price increases for goods and services have been stable and subdued since the mid-1980s. There were fewer Americans working in the private sector in May 2005 than in December 2000. Growth might have been even more tepid had there been no irrational exuberance" (Klein, 2013).

<sup>62</sup> "So how can you reconcile repeated bubbles with an economy showing no sign of inflationary pressures? Summers's answer is that we may be an economy that needs bubbles just to achieve something near full employment – that in the absence of bubbles the economy has a negative natural rate of interest. And this hasn't just been true since the 2008 financial crisis; it has arguably been true, although perhaps with increasing severity, since the 1980s. One way to quantify this is, I think, to look at household debt. Here's the ratio of household debt to GDP since the 50s [see graph in the article]" (Krugman, 2013b).

<sup>63</sup> "We now know that the economic expansion of 2003-2007 was driven by a bubble. You can say the same about the latter part of the 90s expansion; and you can in fact say the same about the later years of the Reagan expansion, which was driven at that point by runaway thrift institutions and a large bubble in commercial real estate" (Krugman, 2013b).

<sup>64</sup> "Without bubbles, the problem of secular stagnation might have posed itself much earlier. This claim can be understood in several different, but not mutually exclusive, senses. It may be (1) interest rates sufficiently low to produce full employment, are also low enough to provoke a bubble. It may be (2) asset bubbles are an important channel by which monetary policy affects real activity. Or it may be (3) bubbles are a substitute for the required negative interest rates" (Mason, 2013).

<sup>65</sup> "So with all that household borrowing, you might have expected the period 1985-2007 to be one of strong inflationary pressure, high interest rates, or both. In fact, you see neither – this was the era of the Great Moderation, a time of low inflation and generally low interest rates. Without all that increase in household debt, interest rates would presumably have to have been considerably lower – maybe negative. In other words, you can argue that our economy has been trying to get into the liquidity trap for a number of years, and that it only avoided the trap for a while thanks to successive bubbles" (Krugman, 2013b).

sufficiently to get the economy back to full employment, too low interest rates might help to create bubbles<sup>66</sup> – maybe as happened with too low interest rates after the 2000’s dotcom crisis –<sup>67</sup>.

#### 1.4. The definition of secular stagnation

After all what has been said above, there is already enough information to finally define “secular stagnation” in this study. This definition will be the one used in the next sections and the meaning the study will refer to each time it cites the expression “secular stagnation”. This will certainly help to narrow the borders and to really know what is being discussed. The different sub-sections above underlined the most important features and ideas within the idea of “secular stagnation” and which are used to build the definition. The definition reads:

*“Secular stagnation refers to a prolonged period of time (at least 7 years, usually over a decade) of subnormal growth (defined as less than 2% Real GDP growth [1]) accompanied by persistently high unemployment rates (at least three percentage points above each countries’ natural rate over a prolonged period of time [2]) and subnormal inflation (consistently lower than the central bank’s 2% target [3]) or even deflation. This situation often entails persistently low interest rates and it can also create a situation of hysteresis [4]. Secular stagnation occurs in developed and market-based economies and it is often characterized by a visible failure of conventional policy measures to return the economy to the previous normality.*

[1] Subnormal growth refers to growth below the normal growth of an economy during the time previous to the shock that leaves this economy in a situation of stagnation. Growth is referred in terms of Real GDP growth. Each country, due to its own features and growth rates over time, will certainly have its own subnormal growth boundary, but a 2% Real GDP is a specific guide to define and help visualize what subnormal growth is. This number can be applied in almost all cases. In the following table appear the Real GDP growth rates of different developed economies

Table 1: Real GDP (RGDP) growth (% change from previous year) [source: own elaboration based on OECD data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Euro area (15 countries)
1995	2,15	1,78	..	9,63	2,96	1,94	4,28	2,76	3,53	2,72	2,44
1996	1,06	0,82	2,36	9,70	1,00	2,61	3,69	2,45	3,49	3,80	1,47
1997	2,16	1,79	3,64	11,27	1,91	1,60	4,41	3,88	4,35	4,49	2,60
1998	3,41	1,66	3,36	8,93	1,32	-2,00	5,14	4,47	3,57	4,45	2,68
1999	3,18	1,74	3,42	10,96	1,42	-0,20	4,07	4,73	2,94	4,85	2,80
2000	3,86	3,30	4,48	10,65	3,89	2,26	3,92	5,01	4,36	4,09	3,95
2001	1,80	1,64	4,20	4,98	1,76	0,36	1,97	3,67	2,18	2,95	1,99
2002	0,94	0,03	3,44	5,44	0,45	0,29	0,76	2,71	2,30	1,78	0,91
2003	0,88	-0,39	5,94	3,75	0,03	1,69	-0,91	3,09	3,95	2,79	0,72
2004	2,34	0,69	4,37	4,21	1,56	2,36	1,56	3,26	3,17	3,80	1,97
2005	1,85	0,85	2,28	6,08	1,09	1,30	0,78	3,58	3,23	3,35	1,80
2006	2,69	3,89	5,51	5,50	2,27	1,69	1,45	4,08	2,76	2,67	3,37
2007	2,24	3,39	3,54	4,96	1,55	2,19	2,37	3,48	3,43	1,79	2,98
2008	-0,19	0,81	-0,21	-2,18	-1,16	-1,04	-0,01	0,89	-0,77	-0,29	0,25
2009	-3,07	-5,08	-3,14	-6,40	-5,53	-5,53	-2,91	-3,83	-5,17	-2,80	-4,40
2010	1,65	3,86	-4,94	-1,07	1,68	4,65	1,94	-0,20	1,66	2,51	1,89
2011	2,03	3,40	-7,10	2,17	0,58	-0,45	-1,25	0,05	1,12	1,85	1,63
2012	0,05	0,90	-6,98	0,15	-2,39	1,45	-3,23	-1,64	0,28	2,78	-0,61
2013	0,30	0,54	-3,86	-0,34	-1,84	1,54	-1,37	-1,22	1,66	1,88	-0,37
2014	0,92	1,94	-0,33	1,87	0,52	1,16	1,13	1,04	3,16	2,56	1,20
2015	1,54	2,06	1,87	2,16	1,12	1,25	1,44	1,49	2,67	3,53	1,66

In 2007, the year previous to the financial crisis that spread all over the world, the growth rates of all the developed countries shown in the table are above 2% – with the exception of the US, that saw how in 2007 its economy already began to suffer due to clear signs of weakness in its housing market –.

<sup>66</sup> “In particular, the first two imply that if interest rates could fall enough to restore full employment, we would have even more bubbles – in the first case, as an unintended side effect of the low rates, in the second, as the channel through which they would work. The third claim implies that if interest rates could fall enough to restore full employment, it would be possible to do more to restrain bubbles” (Mason, 2013).

<sup>67</sup> “I would argue first that there is a continuing challenge of how to achieve growth with financial stability. Second, this might be what you would expect if there had been a substantial decline in natural real rates of interest. And third, addressing these challenges requires thoughtful consideration about what policy approached should be followed” (Summers, 2014).

Although there are exceptions in some particular years – as in 2001 with the dotcom crisis –, the general growth average from 1995 to 2007 in the majority of countries is around or above 2%. On the contrary, in 2014, six years after the financial crisis onset and five years since the global recession officially ended, all countries with the exception of the US and the UK have growth rates below 2%, and some well below this number. This has certainly been the tendency since 2008. Therefore, as can be seen, the 2% real GDP growth rate seems like an adequate measure to define subnormal growth for the majority of developed economies.

[2] In the definition above, “persistently high unemployment rate” has been defined as an unemployment rate of three points above the natural rate of unemployment (or NAIRU). As in [1], this number is simply put as a specific guide to define and help visualize what persistently high unemployment means.

To show why this number is a good guide to assess many developed economies, let’s look at NAIRU rates (Table 2) and compare them with unemployment rates (Table 3) for the same countries used in [1]. Unemployment rates were in 2013 three percentage points above the NAIRU in all countries except in the US, the UK, Japan, France and Germany. In the Euro area the unemployment rate stayed slightly below three points above the NAIRU. Germany and Japan are two countries whose unemployment rates are even below the NAIRU. The US was in 2011 three points above its NAIRU, but in the last years it has been able to little by little reducing its unemployment rate (in its case, it’s even more important than the level of unemployment the slow decrease). The UK is certainly the country which has had more stable unemployment rates over time and nearer to the NAIRU (its highest unemployment rate was in 2011, slightly one point above the NAIRU). Nonetheless, in Mediterranean economies the unemployment rates are well above the NAIRU and there is no clear tendency towards a sharp reduction and its matching with the NAIRU in the near future. Another important point to considerate is the increase in the NAIRU in almost all countries since the beginning of the crisis.

Table 2: Non-Accelerating Inflation rate of Unemployment (NAIRU) or Natural rate of Unemployment (% of labor force) [source: own elaboration based on OECD data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Euro area (15 countries)
1995	9,8	7,2	9,4	11,6	9,4	3,1	6	15,8	8,2	5,6	9,1
1996	9,9	7,5	9,7	11	9,5	3,2	6,1	15,5	7,8	5,5	9,2
1997	9,9	7,7	9,9	10,3	9,5	3,4	6	15	7,3	5,5	9,2
1998	9,7	7,7	10,2	9,6	9,5	3,5	5,9	14,4	6,9	5,4	9,1
1999	9,5	7,7	10,5	9	9,3	3,7	5,8	13,6	6,5	5,4	8,9
2000	9	7,7	10,4	8,5	9,1	3,8	5,8	13	6,1	5,4	8,7
2001	8,7	7,8	10,4	8,1	8,8	3,9	6	12,4	5,8	5,4	8,6
2002	8,6	7,9	10,3	7,8	8,6	4	6,3	12,2	5,7	5,5	8,5
2003	8,7	8,1	10,1	7,6	8,3	4,1	6,6	11,9	5,6	5,5	8,5
2004	8,7	8,2	10,2	7,5	8	4,1	7	11,8	5,6	5,6	8,5
2005	8,7	8,3	10	7,5	7,8	4,1	7,4	11,8	5,6	5,6	8,5
2006	8,7	8,2	9,8	7,5	7,6	4,1	7,7	12	5,8	5,6	8,5
2007	8,5	8	9,9	7,6	7,4	4,2	8,1	12,6	6	5,7	8,4
2008	8,4	7,7	9,9	7,7	7,4	4,2	8,4	13,5	6,2	5,8	8,5
2009	8,8	7,7	10,5	8,8	7,6	4,3	9,1	14,8	6,6	6	8,8
2010	8,9	7,5	11,3	9,7	7,6	4,3	9,5	15,6	6,7	6,1	9
2011	9	7,3	11,9	10,2	7,6	4,3	10,8	16,2	6,9	6,1	9,2
2012	9	7,1	12,2	10,5	7,6	4,3	11	16,5	6,9	6,1	9,1
2013	9	6,8	12,3	10,6	7,6	4,3	11	16,5	6,9	6,1	9,1

Table 3: Unemployment rate (% of labor force) [source: own elaboration based on OECD data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Euro area (18 countries)
1995	..	8,13	..	..	..	3,15	..	..	..	5,61	..
1996	..	8,86	..	..	..	3,35	..	..	..	5,42	..
1997	..	9,82	..	..	..	3,40	..	..	..	4,95	..
1998	..	9,20	11,22	7,57	11,84	4,11	..	..	..	4,51	..
1999	..	8,41	12,10	5,62	11,43	4,68	4,53	15,71	..	4,22	..
2000	..	7,76	11,35	4,33	10,59	4,72	4,04	13,92	5,58	3,99	..
2001	..	7,84	10,78	3,91	9,52	5,03	4,01	10,55	5,01	4,73	..
2002	..	8,65	10,32	4,44	9,01	5,38	5,00	11,47	5,13	5,78	..
2003	8,46	9,64	9,71	4,74	8,67	5,26	6,27	11,48	4,97	5,99	..
2004	8,85	9,79	10,49	4,54	8,05	4,72	6,65	10,97	4,70	5,53	..
2005	8,88	11,17	9,85	4,34	7,72	4,43	7,61	9,16	4,76	5,07	9,01
2006	8,83	10,25	8,89	4,41	6,78	4,14	7,66	8,51	5,37	4,62	8,33
2007	8,01	8,66	8,28	4,57	6,09	3,84	7,98	8,26	5,28	4,62	7,45
2008	7,39	7,53	7,65	6,03	6,74	3,99	7,59	11,33	5,63	5,78	7,50
2009	9,12	7,74	9,46	12,01	7,79	5,07	9,47	18,01	7,55	9,27	9,51
2010	9,31	7,07	12,53	13,85	8,41	5,05	10,80	20,06	7,78	9,62	10,07
2011	9,19	5,92	17,66	14,62	8,40	4,58	12,74	21,64	8,01	8,95	10,10
2012	9,84	5,47	24,24	14,67	10,70	4,35	15,65	25,03	7,86	8,07	11,30
2013	9,89	5,32	27,25	13,05	12,19	4,03	16,25	26,36	7,50	7,38	11,88

Besides, in a period of secular stagnation there is not only a high unemployment rate over a long period of time, but also high levels of involuntary part-time employment. The long-term unemployment rate also tends to increase in these situations.

[3] Low inflation, no inflation or even deflation is another feature of a period of “secular stagnation” which has been defined as inflation below – usually well below – the central bank’s 2% target. Furthermore, this low inflation rate is not due to conjunctural reasons inasmuch as it stays at such low levels for a long period of time, often despite the conventional policy measures taken. The majority of countries have central banks whose main conventional monetary policy tool is interest rates and their main mandate is ensuring price stability<sup>68</sup>. While these banks have different targets to reach in order to ensure price stability, the majority of central banks from developed economies – the ones studied throughout this investigation – and among them especially the four biggest central banks – BoJ (Bank of Japan), ECB (European Central Bank), FED (Federal Reserve) and BoE (Bank of England) – have an inflation target of 2%. That is why “low inflation” has been defined as inflation that persistently – over a long period of time – falls behind central bank’s inflation target.

[4] Hysteresis is a concept initially developed in physics, which refers to systems, organisms and fields that have memory. In brief, the consequences of an input are experienced with a certain lag time, or delay. In economics, hysteresis is a situation which arises when any historical or conjunctural event (short-term) affects the future economic path (long-term). Any disturbance in an economy will lead to a trickle-down effect, and the problem will persist for long. In fact, the hysteresis effect relates the demand-side of the economy with the supply-side, insofar as persistent or unresolved demand-side problems can arrive to affect the supply-side of the economy in the future. A clear example of this situation occurs with the unemployment rate. Persistently high unemployment rates (demand-side) tend to increase the natural rate of unemployment (supply-side). Similarly, long periods of low or stagnant economic growth may actually decrease the rate of potential growth.

## 2. Causes behind the post-Financial Crisis period

*“Cowen’s stagnation theory is that the pace of innovation has slowed, resulting in declining growth in aggregate supply. In contrast, Summers’ story is one of permanent shortfall of aggregate demand, due to an excess of desired saving over desired investment, which can only be eliminated at a negative real interest rate (There is an excessively high supply of savings and excessively low demand for investment)” (Kling, 2013).*

Once the concept of secular stagnation has been defined, the next step is exposing and analyzing the causes that might cause such situation, taking into great consideration the events occurred before and after the 2008 financial crisis and the situation of all major developed economies. The discussion about the fact that many of these developed economies could be in a situation of secular stagnation is analyzed in the last part of this study. The aim of this section is discussing questions such as “what is happening?” or “why such a weak recovery?” without still clearly stating if developed economies are suffering from secular stagnation or not.

This study focuses primarily in developed economies, more specifically in the US, the European Monetary Union – and its single members – and the UK. Japan, although not analyzed directly mostly due to its own idiosyncrasies, is also considered in some analyses. Much of the work analyzed and written in this study makes clear reference to the situation and idiosyncrasies of the US due to its preponderant position in the economics debate. For all these reasons and others, data and analyses about the US are easier to find. That entails that many of the causes are written taking the US as the foremost example. Nonetheless, the majority of the causes, if not all, can also be applied to other developed countries as well. It’s important to underline that here what is being analyzed is a global trend – secular stagnation –

<sup>68</sup> Here (Central Bank News, 2014) are the different inflation targets of world central banks. Other central banks, like the Federal Reserve, have a dual mandate: inflation and unemployment. Central Banks usually calculate inflation using a basket of different products that show how prices move over time. The ECB explains here (ECB, n.d.) how it calculates inflation.

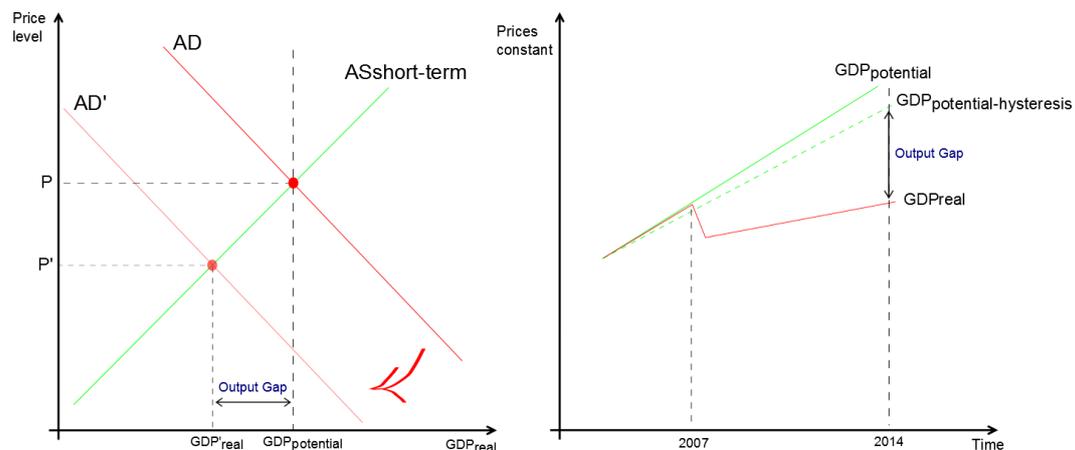
more than specific economic situations within certain countries or a set of countries. The post-crisis economic recovery certainly keeps many similarities between all major economies, which facilitate the analysis and the overall discussion.

In this sections the different cause are explained single, i.e. each one independently from the others. Yet, and will be seen through the data analysis, this does not mean that only one cause or two or maybe three alone might arrive to explain the situation. Actually, it's the union and mixture of many causes that give a better picture of the situation. There can be other causes that could explain the current situation beyond those that are exposed here. Here, the causes that appear are those which can be considered the most important, relevant or, at least, those that have had a most important and prominent presence in the recent economic debate about the weak recovery and the possibility of secular stagnation. For each cause a brief explanation is given and then a brief comment from a prominent economist who has defended this specific cause to explain either the weak recovery or the possibility of secular stagnation will be added in order to give consistency to the exposition.

The different causes can be listed in two groups: supply-side and demand-side causes. They can either be related or make reference to demand-side or supply-side issues. As we've seen in the first part of the work, Hansen, for instance, gave much more importance to supply-side causes, as were demography, innovation and the discovery of new territory or resources. Yet, there are other economists who claim that the real causes are demand-side. This is indeed the case of Larry Summers, who pointed out to the real natural rate of interest – which is defined in the next section – as the most prominent cause of what is currently happening. The following diagrams help to understand how demand and supply affect the economy and how both are related:

- **Demand-side:** demand-side<sup>69</sup> causes are mainly concerned with the output gap; that is to say, with the difference between actual GDP – or actual output – and potential GDP. Therefore, these cases are especially important in the short term. Yet, a conjunctural crisis or a cyclical shock (i.e. of demand) can become structural, thereby affecting the supply-side and having important effects over the long term, especially affecting the level of potential GDP growth. This is precisely the hysteresis effect. The output gap will tend to increase under adverse economic conditions or when wrong economic decisions are taken and, thus, the growth rate of potential GDP could more easily and more dramatically be affected.

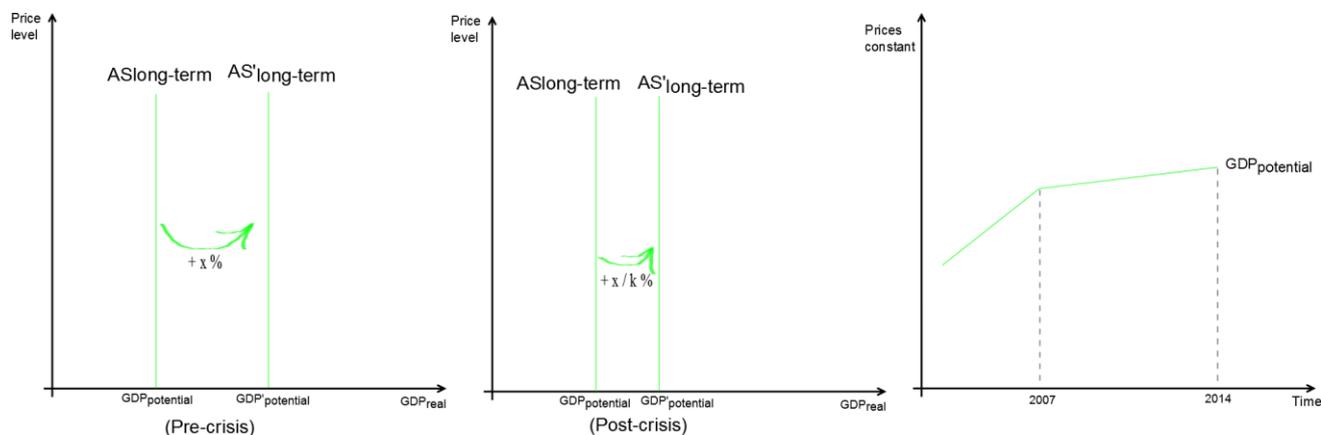
Figure 1: How a demand shortfall affects output (output gap) and potential output (hysteresis effect)  
[source: own elaboration]



<sup>69</sup> Aggregate demand is the demand for the gross domestic product (GDP) of a country, and is represented by this formula: Aggregate Demand (AD) = C + I + G + (X - M); where: C = Consumers' expenditures on goods and services. I = Investment spending by companies on capital goods. G = Government expenditures on publicly provided goods and services. X = Exports of goods and services. M = Imports of goods and services. Even when interest rates are at 0%, investment spending (I) might not be sufficient to close the output gap and return the economy back to potential GDP. That's why in such situations – especially in the absence of an unconventional monetary policy – it's usually recommended to increase government expenditures (G).

- **Supply-side:** supply-side causes primarily affect the level of potential GDP growth and, therefore, are mostly related to the long term. Yet, as it has been said before, a persistent demand shock may also affect potential GDP – that is the normal production capacity of a country, and depends on many factors related with the supply-side –.

Figure 2: How a supply shortfall affects potential output [source: own elaboration]



## 2.1. Demand-side causes

In the following section, the most important demand-side causes – or those which more clearly are related with the problem studied – are going to be exposed and explained.

### 2.1.1. A real natural interest rate more negative than an also negative real interest rate

The first cause – the one that Larry Summers gave a higher importance in his speech and very probably the one which has been more discussed by many other important economists since then – focuses in the real natural rate of interest.

The real natural rate of interest<sup>70</sup> is defined by the San Francisco FED as follows: “*the natural rate is defined to be the real fed funds rate consistent with real GDP equaling its potential level (potential GDP) in the absence of transitory shocks to demand. Potential GDP, in turn, is defined to be the level of output consistent with stable price inflation, absent transitory shocks to supply. Thus, the natural rate of interest is the real fed funds rate consistent with stable inflation absent shocks to demand and supply*” (Williams, 2013)<sup>71</sup>. In short, the real natural interest rate is the real interest rate (in the US represented by the real fed funds rate) when real GDP is equal to potential GDP.

Meanwhile, the real interest rate (or the real rate of interest,  $r$ ) is the nominal rate ( $i$ ) minus the rate of inflation ( $\pi$ ), according to the Fisher equation:

$$r = i - \pi$$

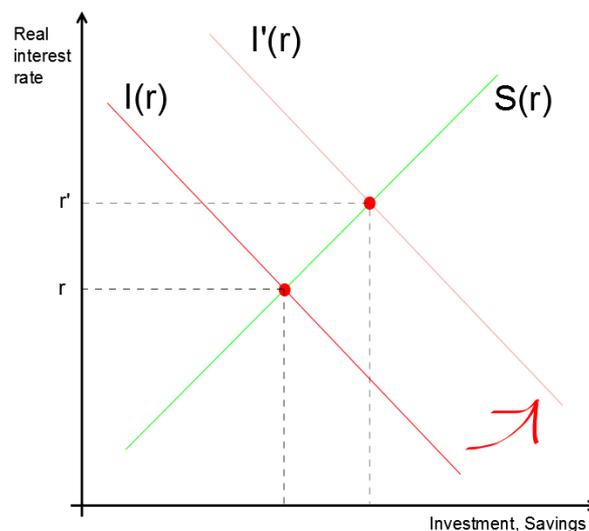
It measures the real return to an investment, or the real cost of borrowing. These interests are important for economic growth inasmuch as they – along with the expected rate of profit – affect investment. In fact, investment spending varies inversely with the real rate of interest. When the real

<sup>70</sup> Estimating this rate is important for several reasons. For example, for monetary policymakers is important estimating it because real rates above or below the natural rate would tend to depress or stimulate economic growth (and this is certainly the key point in the debate) but also financial market participants are interested because this rate would be helpful in forecasting short-term interest rates lasting for many years onwards and thus being able to calculate the value and yields of long-term government and private bonds.

<sup>71</sup> This article from the San Francisco FED can be consulted for a further understanding of what this concept means about and how can it be approximated. It's worth saying that the natural rate is not observable, so it has to be estimated. Also here, it's explained why real rates are important: “in those rates, more so than in nominal rates, influence businesses' decisions about investment spending and consumers' decisions about purchases of durable goods, like refrigerators and cars, and new housing, and, therefore, economic growth”.

interest rate of interest is above the expected rate of profit – which is determined by figuring the expected revenue from the investment minus the costs of making the investment –, the investment is not worth doing. When the real interest rate is below the expected rate of profit, then it is worth doing<sup>72</sup>. Besides, the real interest rate is also the opportunity cost of consumption (the higher the real rate of interest, the higher the opportunity cost of consumption) and hence it also influences household savings. Therefore, there is an economic equilibrium when savings equal investment and – according to Keynes – this equilibrium may occur when the real interest rate is equal to the real natural interest rate (and hence when real GDP is equal to potential GDP) or not. In the end, savings must always equal investment ( $S = I$ )<sup>73</sup>. Figure 3 shows the relation between savings, investment and the real interest rate:

Figure 3: Investment and Savings curve (how investment affects the equilibrium real interest rates)  
[source: own elaboration]



The intersection of  $S(r)$  and  $I(r)$  determines the equilibrium real interest rate. Interest rates are flexible; they move in order to adjust the amount of saving and the amount of investment spending in the economy ( $S(r) = I(r)$ ). If investment spending changes – it will be higher at every interest rate – because individual attitudes toward the future change, then the equilibrium interest rate will rise, until savings and investment are again equal ( $S(r) = I'(r)$ ). In this situation, both investment spending and the level of savings rise, indeed having more investment spending, more saving, and less consumption spending. It is important to underline that a shift in  $I(r)$  or  $S(r)$  causes redistribution in output between spending and saving, but there is no change in the level of output. Besides, a shift to the right by the  $I(r)$  curve – as shown in the graph – leads to more investment and less consumption, which in turn should lead to faster economic growth. Even so, the immediate effects are transitional, not permanent.

After the above explanation, the main problem can already be exposed and discussed. The problem that developed economies might be facing – as firstly exposed by Summers and later discussed by other economists – is the following: in a situation where nominal interest rates are around zero<sup>74</sup> and current (and expected) inflation is either near zero or around 1% (depending on the country), the real interest rate is negative, but not sufficiently negative to equal the natural real rate of interest, which is even more negative than the current real rate (Summers and others have estimated that the natural real

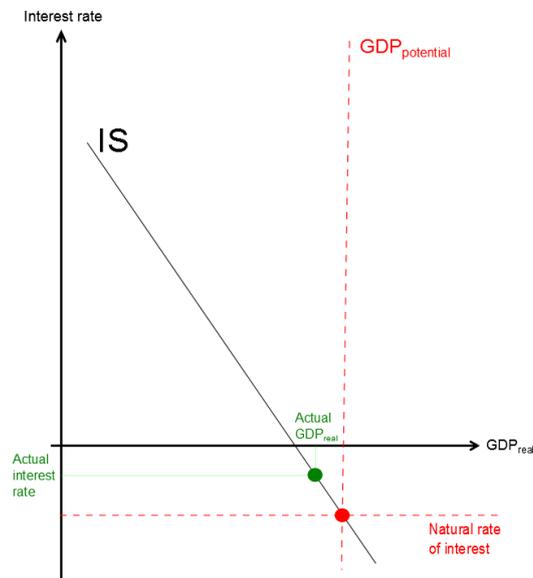
<sup>72</sup> “In theory, the rate of interest and the rate of profit are linked. If a business can borrow at 2 percent and has an investment opportunity that will return 3 percent, it should make that investment. This is why the Federal Reserve expected investment to rise when it cut market interest rates. Yet even with such rates near zero, there is little evidence of rising investment. This can only be because businesses don’t perceive investment opportunities that would produce profit rates much above zero”. (Bartlett, 2013).

<sup>73</sup> It is called the “savings identity”. In (Free Econ Help, n.d.) this identity is demonstrated for an open economy: Why savings equals investment ( $S=I$ ) and the financial sector notes.

<sup>74</sup> This is the short-term interest rate that monetary authorities set in each monetary zone. In the US it is called the FED funds rate.

interest rate could be approximately -2 or -3%<sup>75</sup>). Under current monetary conditions the economy is unable to reach the natural real interest rate consistent with full employment. Therefore, the economy is nowadays far from working at its potential, and over the long-term this also affects the growth rate of potential GDP. Figure 4 shows the current situation:

Figure 4: IS curve (actual real interest rate does not equal the natural real interest rate) [source: own elaboration]



As seen in Figure 4, the economy is now working in a situation where the real interest rate is negative but still above the natural rate of interest consistent with potential GDP and full employment. The following text very clearly explains the problem and its implications for the economy (clarifications in brackets are mine):

*“The way to explain these dynamics, he suggests, is to imagine that the real, natural rate of interest is negative<sup>76</sup>. And so at prevailing rates of inflation there is no way to get short-run nominal interest rates low enough to generate the sort of strong recovery that used to be common after deep recessions. What’s more, he says, this state of affairs may persist for quite a long time. And that means that the crisis is not over. Monetary policy is only going to get tighter [for fear of financial instability: unsustainable credit booms and asset price bubbles]. Fiscal policy will probably get tighter [not enough ability to borrow, high debt levels and the necessity to cut spending and rising taxes] and almost certainly won’t be appreciably looser.” (R.A., 2013).*

If the real natural interest rate can serve to explain why the economy is stagnating, there are also some probable causes that might explain why this real natural rate of interest is so low:

- a. A global savings glut happens when desired saving exceeds desired investment. This hypothesis was firstly mentioned in a 2005 article by Ben Bernanke<sup>77</sup>, who later would become FED Chairman. A global savings glut might have been spurred by emerging-market reserve accumulation and exchange-rate management in a dynamic of increasing

<sup>75</sup> “[...] Well, maybe, the “natural” real interest rate is about -2 or -3%! And because the zero lower bound prevents us from achieving this rate, we need even more stimulus (of all types) than we thought. Essentially, we need to manufacture bubbles to achieve full employment equilibrium” (Wiley, 2013).

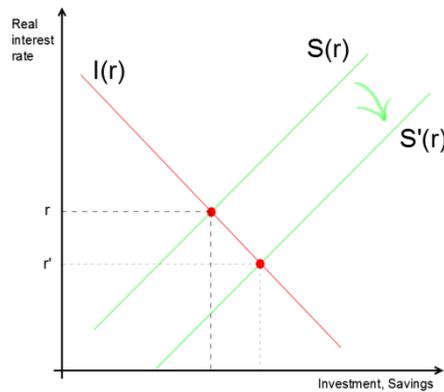
<sup>76</sup> “If the market wants a strongly negative real interest rate, we’ll have persistent problems until we find a way to deliver such a rate” (Krugman, 2013b).

<sup>77</sup> “To be more specific, I will argue that over the past decade a combination of diverse forces has created a significant increase in the global supply of saving--a global saving glut--which helps to explain the relatively low level of long-term real interest rates in the world today” (Bernanke, 2005).

global imbalances previous to the 2008 financial crisis. The logic is that for many years the world has saved more than it has invested (glut of excess intended saving). The outcome is a fall in global real long-term interest rates and their associated capitalization rates.

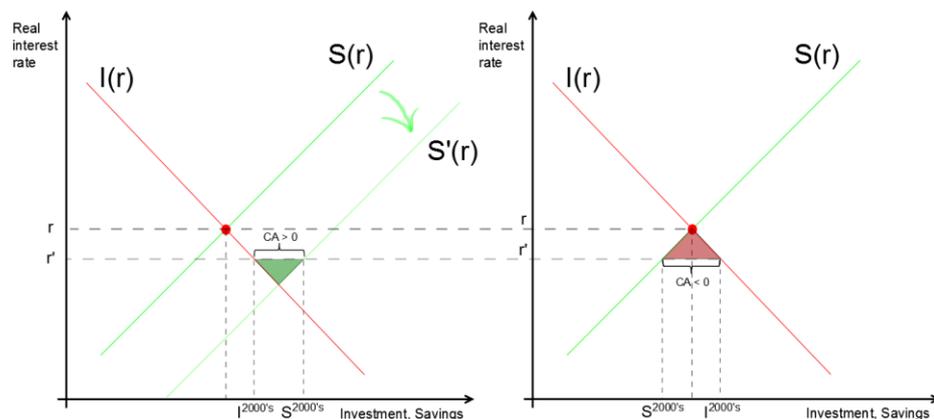
A global savings glut can be represented with a standard demand and supply chart for the global market for loanable funds where the saving glut is simply a shift of the saving (supply) curve to the right:

Figure 5: Demand and Supply chart for the global market for loanable funds [source: own elaboration]



The global savings glut hypothesis not only explains the drop in real interest rates, but it is also able to give a response for the growth in global imbalances, especially the widening of current account (CA) deficits in some developed economies like the US<sup>78</sup>. This situation can again be represented by dividing the world in two blocks: those countries whose savings increased (left-hand graph) and the rest of the world (right-hand graph), starting from an initial equilibrium (Saving = Investment).

Figure 6: Investment and Savings curve (Current Accounts) [source: own elaboration]



If the savings of those countries who already have current account surpluses (left-hand graph) still rise more (the savings curve move further to the right), then the current account deficits from other countries will also increase ceteris paribus. In short, this shows that it is highly probably for the countries that increase their savings to display a growing current account surplus while the countries where the two curves are not

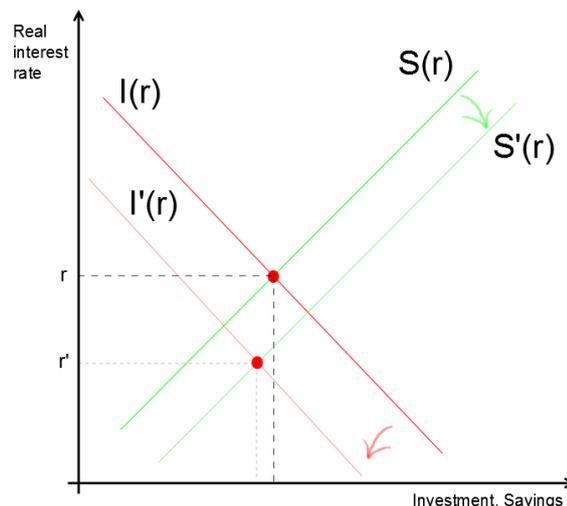
<sup>78</sup> And even nowadays there are voices that claim that this tendency towards increasing savings might have returned: “[...] there have been substantial global moves to accumulate central bank reserves, disproportionately in safe assets in general, and in US Treasuries in particular. Each of these factors has operated to reduce natural or equilibrium real interest rates” (Summers, 2014).

shifting to display a growing current account deficit<sup>79</sup>. It is important to mention that in the global economy the sum of current accounts must equal zero, so that:

$$CA^{saving\ countries} + CA^{rest\ of\ the\ world} = 0$$

Nonetheless, a drop in the real interest rate – as shown in the graphs above – should have entailed an increase in investment, both in countries where the supply of saving increased as well as in the others. Even so, this does not seem to have happened; in fact, investment has actually dropped in the majority of developed economies<sup>80</sup>. The only way to explain this fact is to argue that at the same time that the saving curve was shifting to the right in some countries, the investment curve was also shifting (this time inwards) in other countries. This is what has been called a dearth – or shortfall – of investment intentions<sup>81</sup>, which in great part followed the East Asian financial crisis in 1997 when investment in East Asian and oil producing countries dropped significantly relative to savings in these same countries. This situation can again be explained using Figure 7:

Figure 7: Investment and Savings curve (shortfall of investment intentions) [source: own elaboration]



Therefore, this global savings glut hypothesis plus the thesis of an investment dearth not only helps to explain the depressed real interest rate in the last years – or even decades –; it also explains why economic growth and especially labor market performance have remained so weak during the years following to the financial crisis of 2008 – especially in developed economies – and how the economy did not overheat in the years previous to the crisis despite the bubble. Bernanke saw the 1997 East Asian crisis as a turning point in this process which caused the real interest rates to fall and the

<sup>79</sup> “This simple framework matches well the data during those years. Current account surplus in countries such as Germany, Japan, Oil producing countries, China and other emerging markets in Asia increased while deficits in countries such as the US and Greece, Spain, Portugal, Ireland, the UK increased as well [see data in the article]” (Fatas, 2013b).

<sup>80</sup> See this data about the aggregate investment rate (as % of GDP) for all advanced economies using the GDP share of each of these countries as weights in Fatas (2013b)

<sup>81</sup> “Martin Wolf, at the Financial Times, argues that the future of the world economy, in particular that of advanced economies, looks sluggish because investment rates have displayed a downward trend over recent years, even before the financial crisis started [...] It is a fact that since the mid-1990s interest rates in the world started a downward trend. This trend was explained by Ben Bernanke in his March 2005 speech” (Fatas, 2013b). Former FED Chairman Alan Greenspan also pointed out that either a global savings glut, a dearth of investment or both might be taking place, in any case following a drop in the real interest rate: “Whether it was a glut of excess intended saving, or a shortfall of investment intentions, the result was the same: a fall in global real long-term interest rates and their associated capitalization rates. Asset prices, particularly house prices, in nearly two dozen countries accordingly moved dramatically higher. U.S. house price gains were high by historical standards but no more than average compared to other countries”. (Greenspan, 2010).

current account deficits of many countries – especially the US’s current account deficit<sup>82</sup> – to increase, which in turn helped to increase global imbalances<sup>83</sup>.

- b. The savings glut and the investment dearth lead to consider a new factor or cause which could certainly help to explain this situation and, by extent, such a negative real natural interest rate. This factor is the misallocation of resources, especially excessive savings. The main problem is that, for several reasons, these excessive savings are not being placed where they are more necessary, thus helping to lower investment. A weaker and less healthy financial sector emerged from the crisis could be a reason to explain this situation, to the extent that it restricts lending because of their sanitation needs after a pre-crisis period where its liabilities grew disproportionately<sup>84</sup>. Therefore, these excess savings are not being placed in the productive economy or used to boost growth in part due to a not recovered financial sector so that investment is falling at the same time that exist an excess of savings. This situation helps to depress further the real natural interest rate<sup>85</sup>.
- c. Such a depressed real natural interest rate could also be seen as a transitory symptom of widespread deleveraging<sup>86</sup>. That is to say, a clear sign of an excessively indebted economy and its necessity to deleverage or its already ongoing deleverage. During the years – even decades – previous to the 2008 financial crisis there was a huge increase in debt, especially in household debt (this fact is analyzed in the data analysis section). The peak was reached in 2007-2008, before the financial crisis. This tendency towards ever increasing household debt has had a similar role in the majority of developed economies. Yet this process came to a halt with the financial crisis. Thenceforth, household, companies and even governments entered in a process of deleveraging – i.e. substantial reduction in borrowing and the subsequent reduction of the indebtedness of economic agents – which has depressed consumption (much of household’s income is intended to repay the debts previously contracted) and investment (less lending by the process of deleveraging in the financial sector plus companies also repaying their debts). Besides, a negative economic shock followed by a recession usually pushes economic agents towards an increase in savings due to the uncertainty in the future and its consequences. This simultaneous drop in investment and consumption and the subsequent rise in savings tend to depress the natural real interest rates. Thus, this process has also a direct effect over economic growth, which could resent considerably. This situation is indeed very problematic insofar as it entails less economic growth, but less economic growth in turn makes more difficult the process of deleveraging, strengthening the negative burden of debt over economic agents. Therefore, in general debt can be either a cause (debt has deteriorating marginal impact on economic growth) or a consequence of weak economic growth.

<sup>82</sup> “But then the question is, why do we find it so hard to achieve full employment even with saving somewhat low by historical standards? And the answer seems clear: it’s the trade deficit. America in the 70s and 80s could have high savings, not hugely strong investment, but still have full employment because trade deficits weren’t as large compared with the economy as they are now. And this in turn means that the savings glut possibly making the natural real rate negative is actually originating abroad, not at home” (Krugman, 2011b).

<sup>83</sup> Krugman argues that a new savings glut might have taken place after the 2008 financial crisis, but this time not in East Asia, but in developed economies: “Now imagine a financial crisis in the North that reduces investment demand while increasing desired savings [see graph]. In effect, this creates a new global savings glut, this time originating in advanced economies rather than in the decisions of China etc. to accumulate reserves” (Krugman, 2011a).

<sup>84</sup> Jared Bernstein has considered this thesis. In the following article he asks a very ironic question that very well exposes the problems: “And the misallocation is profound. Who out there thinks financial markets are playing their necessary role of allocating excess savings to their most productive uses?” (Bernstein, 2013).

<sup>85</sup> Misallocation of resources is also usually used to explain changes in aggregate factor productivity (Azariadis & Kass, 2012).

<sup>86</sup> The term deleveraging can be defined as follows: “In simple terms, it comes down to reducing the percentage of a balance sheet made up of debt either by generating cash from operations (in the case of a corporation) or working (in the case of a person) or selling off assets such as real estate, stocks, bonds, divisions, subsidiaries, etc.” (Kennon, n.d.).

### 2.1.2. Wealth and income inequality

The following two causes – wealth and income inequality – maintain a close relationship with the process of financialization of capitalism and the evolution of the majority of developed economy since the 80s. The problems posed by inequality have been exposed more clearly after the crisis. Yet, even before the crisis there was already an upward trend in inequality within developed nations, very important when compared with the post-war period.

Both income and wealth inequality have appeared as two important problems that that could not allow a larger, more balanced and sustainable growth in developed economies after the financial crisis. The increasing financialization of capitalism made debt more available and even cheaper, and due to stagnant wages and the loss of purchasing power many families got into debt (*“keeping up with the Joneses”*<sup>87</sup>). This debt now has to be repaid in a time where salaries either are stagnant or have fallen and where inflation remains stubbornly low. Under this situation, debt remains a very tough economic burden for families and companies and, by extent, to the economy. Besides, a large gap between creditors and debtors is created, boosting inequality further. Furthermore, the impact of debt has been higher among the middle and low income families, the ones which have a higher propensity for consumption and investment. Higher inequality means less disposable income which impacts consumption and investment. In fact, this is a self-feeding process insofar as more inequality leads to more inequality which in turn depresses consumption, investment and damages economic growth, which may force to find more innovative financial instruments – like subprime mortgages – to placate the impact that rising inequality has on the economy.

On the one hand, wealth inequality<sup>88</sup> refers to the unequal distribution of assets among residents of a certain country. Wealth is composed by things such as the values of homes, automobiles, personal valuables, businesses, savings, and investments. There is certain controversy about the impact of wealth inequality on growth and especially the impact on developed economies through the present post-crisis recovery. There is no consensus about the severity of wealth inequality either. Among the problems of inequality, it can make growth more volatile and create the unstable conditions for a sudden slowdown in GDP growth. The logic behind the argument is that rich people usually have a tendency to save more than middle-class people and also that those with more concentration of wealth are a minority – although a well-connected and influential one – without the consumption power to offset an impoverished middle-class<sup>89</sup>. Therefore, the concentration of wealth on the hand of the few not only has deep political and sociological implications but it also can depress economic growth as far as it affects aggregate demand.

On the other hand, there is income inequality. Although wealth and income inequality are closely related and usually follow similar patterns, there are some important differences. In a nutshell, wealth refers to how rich a person is while income is how much a person earns. Therefore, there is a distinction between how much a person gets from his work or his investments – income – and how much he has or he possesses assets or other patrimonial goods – wealth –. Somehow, wealth inequality takes into account income inequality – the part – insofar as it is considering the whole amount of wealth inequality – the total – which exists within a society.

There are, at least, two main reasons why income inequality alone is insufficient for understanding economic inequality. First, income inequality does not accurately reflect an individual's economic position insofar as it does not consider all the wealth he or she really has, only the income he earns or receives periodically. Second, income does not portray financial inequality in economies where

<sup>87</sup> This is a famous expression used by Robert H. Frank to explain why such a massive increase in household debt occurred during the last decades. In a time where wages remain stagnant, the only way to maintain the previously acquired standard of living was through debt. Maintaining this same standard or even increasing it is important inasmuch as it serves to maintain a certain social position or having importance or prominence among the community. To fail to "keep up with the Joneses" is perceived as demonstrating socio-economic or cultural inferiority.

<sup>88</sup> Durden (2011) is a very thorough article about Wealth inequality in America.

<sup>89</sup> Therefore, all households do not react in the same way to a windfall of cash of wealth, and this means that the distribution of wealth or income would matter much for cyclical policy.

wealth is very often invested in financial instruments or in finance more generally. The issue is that the wealthiest families might have low income but this does not mean they are less rich as long as the value of their assets earns enough money to support them.

One of the views of why income inequality might be harmful for economic growth is what during the 30's was called the under-consumption hypothesis, which can also be applied, although in a lesser extent, in dealing with wealth inequality. This hypothesis – also much developed by economist Alvin Hansen – stresses that the only major source of recessions, stagnation, and other aggregate demand failures is inadequate consumer demand and because of this capitalist economies always tend to have periodic recessions over time. In fact, low income households spend a much higher fraction of cash windfalls than high income households<sup>90</sup>; hence, low income and high income households respond in a much different way to a windfall of cash or wealth. Thereby, low income households have a much higher marginal propensity to consume (MPC) than high income households<sup>91</sup>. Under these assumptions, income inequality – in much the same way as with wealth inequality – might currently be the major source of an under consumption<sup>92</sup>.

Another thesis also maintains that a bad distribution of income drags the economy insofar as income usually goes not to those who are more productive or more entrepreneurship, but those either with much power or to rich rent-extracting people. This creates a distortion within the economy, and also affects the natural rate of interest<sup>93</sup>.

*“A concentration of wealth – due to earnings from commodity exports and surpluses from pursuing industrial-policy strategies of undervaluing currencies in order to generate the social learning promoted by export-led manufacturing growth – in the hands of sovereign wealth funds and other political actors that seek not to maximize risk-adjusted return but instead some other objective that we can think of as “safety of nominal principal”. This is a market failure: they are not properly responding to real economic incentives [...] A concentration of wealth – due to other factors making for increasing wealth inequality – that concentrates savings in the hands of the rich who seek not to maximize risk-adjusted return but instead to preserve their principal as they guard against large-scale political risks. This makes the following market failure crucial.” (De Long, 2014).*

*“It seems more likely that the real problem is the dramatic concentration of wealth and incomes during the past 30 years. Those who have much more than they can ever hope to spend don't increase their consumption by much when their incomes increase. Instead, they tend to save the extra dollars. Many others tried to compensate for their stagnant incomes by borrowing more and more. That enabled spending but created the danger of excess indebtedness.” (Klein, 2013).*

<sup>90</sup> Marginal propensity to save and to consume are equal to 1 ( $MPC + MPS = 1$ ), so if one rises, the other has to decrease. Therefore, income and wealth inequality not only decreases marginal propensity to consume ( $MPC = \frac{\Delta C}{\Delta Y_D}$ ), but it also increases the marginal propensity to save ( $MPS = \frac{\Delta S}{\Delta Y_D}$ ). “Changes in the distribution of income, both between labor income and capital income and between those with more wealth and those with less, have operated to raise the propensity to save, as have increases in corporate-retained earnings. An increase in inequality and the capital income share operate to increase the level of savings. Reduced investment demand and increased propensity to save operate in the direction of a lower equilibrium real interest rate”. (Summers, 2014).

<sup>91</sup> Some empirical research is given here in order to support this thesis. See the highlights from a study carried out in Italy (Mian & Sufi, 2014a).

<sup>92</sup> Paul Krugman, for instance, is sympathetic with this view: “[...] the hypothesis was [in the early postwar years] that there was a fundamental excess of desired savings over desired investment, and that this would require government intervention on a sustained basis to achieve full employment. That hypothesis proved wrong at the time, but that doesn't mean it couldn't be true now. And I'm somewhat sympathetic to the view that it might indeed be true. Waldman goes on to suggest that high income inequality is what's driving this” (Krugman, 2011b).

<sup>93</sup> There has been a lot of debate recently about the topics of income and wealth inequality especially since the publication of Piketty's book *Capital in the Twenty-First Century* (Piketty, 2014). His main thesis is that wealth will concentrate if the rate of return on capital ( $r$ ) is greater than the rate of economic growth ( $g$ ). Over the long term, Piketty argues, this will lead to the concentration of wealth and economic instability. In his book Piketty tries to demonstrate that inequality has certainly risen in the last decades and that inequality is not an accident but an intrinsic feature of a capitalist economy.

### 2.1.3. Tight monetary policy

This is another main cause to explain the Financial Crisis and the subsequent Great Recession, as well as the current weak recovery (or what is sometimes dubbed as “The Great Stagnation”). Since 2008, some economists have been arguing that tight monetary policy has been the underlying trigger of what happened and also of what is happening. In short, the argument is that tight money – a too contractionary monetary policy<sup>94</sup> – caused the Great Recession, which greatly worsened the financial crisis. Monetary policy was incredibly contractionary – regarded in terms of nominal income growth (Nominal GDP) with respect to the pre-crisis trend – in the months around the Financial Crisis and it has certainly remained so since then. It’s also argued that markets expected and wanted a more expansionary approach in the first weeks after and before Lehman Brothers crack, and they have been expecting that since then<sup>95</sup>. Certainly, Nominal GDP growth has been extremely weak since 2008 and it truly felt disproportionately after the financial shock (although the argument is that this contractionary monetary policy, which already existed before the financial crisis appeared visible, was a main cause behind the impact that the Financial Crisis had over the overall economy).

Central Banks are very powerful institutions – insofar as they are responsible of monetary policy – and they play a key role during recessions, trying to soft its impact over the economy through the monetary tools they have available. Therefore, it’s argued that a crisis where inflation falls sharply, where NGDP has been falling below the trend during the last six years in the majority of developed economies and where unemployment has remained stubbornly high is only due to a lack of powerful action of the Central Bank in order boost the nominal economy. Thus, Central Banks should have acted earlier, more decisively and with all the monetary tools available to avoid a slump and to soften the effects that the housing bubble burst and the subsequent Financial Crisis had over the whole economy.

Bad monetary policy is not a new argument to explain recessions and weak recoveries. In fact, one of the fundamental causes behind the toughness of the Great Depression from the 30’s – as it was exposed by Milton Friedman and Anna Schwartz in their book *A Monetary History of the United States* – was contractionary monetary policy. This thesis is again defended nowadays to explain the toughness of the current crisis. The role that the Financial Crisis has played in helping to depress the economy is not denied, it’s simply said that the underlying cause is contractionary monetary policy which explains both the depressed economy and the tough effects that the Financial Crisis has had over the economy. If Central Banks would have acted quickly and decisively, the Financial Crisis probably would have been milder and the economy would have recovered earlier.

## 2.2. Supply-side causes

In the following section, the most important supply-side causes – or those which more clearly are related with the problem studied – are going to be exposed and explained. Demand-side causes tend to be easier to treat with monetary and/or fiscal policy while supply-side causes are usually less explicit and more structural, belonging in most cases to the long-term. Unlike demand-side causes, supply-side ones usually affect potential GDP and the natural rate of unemployment. Again, many of these causes are again exposed mainly tasking as a reference point the situation of the US, although they follow a very similar pattern in all developed economies.

<sup>94</sup> Ben Bernanke defined monetary policy stance as: “The imperfect reliability of money growth as an indicator of monetary policy is unfortunate, because we don’t really have anything satisfactory to replace it. As emphasized by Friedman [...] nominal interest rates are not good indicators of the stance of policy [...] The real short-term interest rate [...] is also imperfect [...]. Ultimately, it appears, one can check to see if an economy has a stable monetary background only by looking at macroeconomic indicators such as nominal GDP growth and inflation” (Sumner, 2013c).

<sup>95</sup> These ideas have gathered in a “new” school of economic thinking which was born entirely in the web in the years following the Financial Crisis. Lars Christensen called this new school – that was born entirely on the blogosphere – “the second monetarist counter-revolution”, recalling the first revolution initiated by Milton Friedman et al. (Christensen, 2011).

There are two ways of looking at economic growth:

$$(1) \text{GDP}_{Real} = \frac{\text{GDP}_{Real}}{\text{employed population}} \cdot \text{employed population}$$

$$(2) \text{GDP}_{Real} \text{ per capita} = \frac{\text{GDP}_{Real}}{\text{employed population}} \cdot \frac{\text{employed population}}{\text{total population}}$$

Where: a)  $\frac{\text{GDP}_{Real}}{\text{employed population}} = \text{Labor productivity}$ ; b)  $\frac{\text{employed population}}{\text{total population}} = \text{employment} - \text{to} - \text{population ratio}$

Considering the above, the supply-side causes are divided into two types: those affecting labor productivity and those affecting the employment-to-population ratio. Finally, there are two general causes that can affect both labor productivity and employment-to-population ratio, inasmuch as they are related with policy and the same economic structure of a country.

### 2.2.1. Affecting employment-to-population ratio:

#### 2.2.1.1. Declining population growth and aging population

The first cause has to do with demography. Demography has always had a central role in the economic debate – it had such a role in Alvin Hansen’s analysis of the Great Depression – and it is certainly a very important factor for the development and growth of an economy. The two main demographic problems that the majority of developed economies face are: (1) low population growth and (2) aging population.

A stagnant population growth puts clear pressure on an economy. Population growth affects a widely set of economic variables and it is also related, directly or indirectly, with the majority of factors needed for boosting economic growth. In fact, economic growth can sometimes be written this way:

$$\text{Growth Rate of GDP} = \text{Growth Rate of Population} + \text{Growth Rate of GDP per capita}^{96}$$

Alvin Hansen considered that a slowing population growth would mean low investment demand, thus affecting economic growth in the mid or long-term. The relation that may be between a stagnant population and a stagnant economy was absolutely clear to Hansen. Yet, the U.S. had high birth rates during the 40’s and 50’s (“baby boomers”) which eventually ended up rejecting the thesis of a stagnant population growth. Alvin Hansen also considered that a declining rate of population growth means a declining natural rate of interest (Summers, 2014). Therefore, population growth might also be a cause to explain why there might be a lower natural real rate of interest.

The problem now is that there exists a declining tendency in population growth year over year since the late seventies in the majority of developed countries. It’s not clear at all that population growth may surge in the following years, completely reversing the current trend. Some developed countries, especially Japan, will even lose population in the next decades. The projected population growth of Europe is flat for the next decade, then beginning to fall slightly. The US will, however, have a higher population in absolute numbers (Roche, 2014), but the common pattern is that population growth has slowed since the seventies and it does not appear to go back to postwar levels. Japan is an interesting case inasmuch as it is probably the only true developed country that has suffered from a prolonged period of stagnation since the late 80’s. Its population has been shrinking dramatically since then and this low population growth – as well as an aging population – might in great measure help to explain this poor economic performance, especially in terms of GDP growth.

Population growth is important for several reasons. A growing population usually means more consumption and thus more investment. And within a developed economy, where domestic demand is a

<sup>96</sup> (Roche, 2014)

big share of GDP<sup>97</sup>, a growing population ultimately helps to boost strongly economic growth. A shrinking population also means that the number of people working or willing to work will be reduced. Slowing labor force participation means also slowing economic growth. All this factors eventually affects potential GDP. This fact is very much related with the second main problem that many developed economies face, which is an aging population. In many developed countries the bulk of population is between 45 and 65 years old and their population pyramids show a contractionary state, with a narrow base and top. In developed countries, the population is generally older on average, insofar as the country has long life expectancy, a low death rate, but also a low birth rate<sup>98</sup>. These distributions of population put pressure over the different economies and especially over the economic structure of many of them. Besides, an increasingly older population is related with the first cause exposed on the demand-side section. An elderly population tends to consume less and save more (their savings rate exceed their investment or spending rates) than a young working population. This certainly helps to depress the real interest rate (in fact, in a Samuelson consumption-loan model, the natural rate of interest equals the rate of population growth).

*“Think of it this way: during the period 1960-85, when the U.S. economy seemed able to achieve full employment without bubbles, our labor force grew an average 2.1 percent annually. In part this reflected the maturing of the baby boomers, in part the move of women into the labor force. This growth made sustaining investment fairly easy: the business of providing Americans with new houses, new offices, and so on easily absorbed a fairly high fraction of GDP. Now look forward. The Census projects that the population aged 18 to 64 will grow at an annual rate of only 0.2 percent between 2015 and 2025. Unless labor force participation not only stops declining but starts rising rapidly again, this means a slower-growth economy, and thanks to the accelerator effect, lower investment demand. By the way, in a Samuelson consumption-loan model, the natural rate of interest equals the rate of population growth. Reality is a lot more complicated than that, but I don’t think it’s foolish to guess that the decline in population growth has reduced the natural real rate of interest by something like an equal amount (and to note that Japan’s shrinking working-age population is probably a major factor in its secular stagnation.).”* (Krugman, 2013b).

### 2.2.1.2. Declining labor force growth

The second factor to consider is labor force growth<sup>99</sup>, and it is certainly much related with population growth. The labor force has been steadily declining since the 70’s, when it peaked. The actual number is one of the lowest since the IIWW and for the next decade there is even a lower projection. This means that there are now much less people able to work than in any time in the last 60 years<sup>100</sup>. A declining labor force growth not only means, as happened with a declining population: less consumption, spending and investment in the economy, but also a difficulty an added difficulty for the different governments to meet its obligations in relation to the payment of pensions or those who require government assistance. This slowing labor force participation is one of the causes behind the slowdown in potential GDP.

<sup>97</sup> The World Bank calculates the “household final consumption expenditure, etc., as % of GDP” (formerly “private consumption”), which is “the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households”. In the majority of developed countries it accounts for about 50 to 60% of GDP. (The World Bank, 2013a).

<sup>98</sup> Some population pyramids are analyzed in the next part and serve to corroborate these trends.

<sup>99</sup> The labor force is the actual number of people available for work, i.e. all the people who is able to work in some way. The labor force of a country includes both those who are employed and those who are unemployed. The labor force participation rate, LFPR (or economic activity rate, EAR), is the ratio between the labor force and the overall size of their cohort or population group (national population of the same age range).

<sup>100</sup> This data will be analyzed in the next section.

*“The main reason for the projected slowdown in potential GDP is the slowing of labor force growth. This is partly the result of the retirement of the baby boom cohort and in part the end of the period in which women were entering the labor force in large numbers.” (Rao, 2013)<sup>101</sup>.*

## 2.2.2. Affecting labor productivity

### 2.2.2.1. Decline in innovation and technological progress

The next cause that might explain why the economy seems to be stuck in a never-ending stagnation is a decline in innovation. This is a theory that has certainly gained much fame lately, with many economists pointing out to this fact as one of the main economic shifts in this post-2008 world. Certainly, innovation plays a major influence on boosting and sustaining economic growth. The invention of new technologies – especially of those who are more ground-breaking, like the railroad, the automobile or the computer – entails a huge boost for the economy, not only in the short-term but also through a prolonged period of time. There is a transversal consensus about the importance that has innovation over economic growth<sup>102</sup>. Like population growth, innovation was also a key factor in Alvin Hansen’s analysis of the Great Depression (back then, he considered that during 30’s the age of ground-breaking inventions had come to an end and thus the economic growth created by previous inventions like the automobile or the railroad were no longer to be lived again). Yet, the Second World War helped to boost innovation and many important inventions were primarily of military application, although they were finally introduced into civilian life with great success. In fact, many of the great inventions of the second half of the twentieth century are in greater or lesser extent innovations engendered during World War II (such as the computer or the Internet). Therefore, Hansen was again proved wrong about his guess about the end to the great inventions.

Innovation growth exerts also a direct impact over aggregate supply and from there it directly affects economic growth. Furthermore, innovation and technological progress also affects the quantity and quality amount of equipment and structures used to produce goods and services, thus affecting labor productivity, that is the key to long-run economic growth. Tyler Cowen is one of the biggest proponents nowadays of the thesis about a decline in innovation. He supports the thesis that developed economies may have entered in a time of stagnation because the pace of innovation has sharply slowed, resulting in declining growth in aggregate supply. The problem is not denying that developed economies may be innovative, but if these economies will be able to create ground-breaking technologies like those that revolutionized modern societies, like the railroad, the automobile, the computer or the Internet; what he calls “general purpose technologies” (technologies that transform an entire economy, such as the steam engine, electricity, the car and so on).

As has been said, Cowen also has pointed out to the idea that this kind of revolutionary innovation might be something from the past and that the future trend will be simply towards a higher automation and robotization of current processes. A world where machines do almost everything could very well be a stagnant world<sup>103</sup>. This somehow shows the inherent dilemma: more technological innovation through the development and implementation of machines and robots could result in an economy where less people are needed to work so that incomes could fall or at least the wage gap could widen between those who carry out the implementation and development of this automation – or the

<sup>101</sup> The cite is from Krugman, although taken from (Rao, 2013).

<sup>102</sup> There have been written many studies about the impact that innovation has over economic growth. See for example Rosenberg (2004).

<sup>103</sup> See this example: “The driverless vehicle could displace most truck drivers, taxi drivers, bus drivers, drivers of ambulances and other emergency vehicles, chauffeurs, and drivers of military vehicles. There are some 3.5 million truck drivers in the United States and 900,000 bus and taxi drivers and chauffeurs: in total, a nontrivial fraction of the total U.S. work force. Where are all these people to go when their jobs are replaced by a computer lodged in a driverless vehicle? Many other jobs will be disappearing because of automation at the same time. Similar technology is likely to be displacing in approximately the same time frame airplane pilots, warehouse workers, workers in factories that produce vehicles, oil-field workers, and many other types of worker as well. Historically, it is true, new technologies created jobs for a lot of workers, but this seems unlikely to happen in the case of computer technology. Driverless cars are a good example. They just require the building and installing of computers that have already been designed. The manpower needs are trivial” (Posner, 2014).

owners of the enterprises that can afford such technological change – and all those – the majority – who have to compete for the work that now can be done by a machine<sup>104</sup>. In short, the idea is that a lack of innovation can be a drag for the economy, but more automation could mean more wealth disparities – whether income is not well distributed – and a world where overall spending decreases due to a less empowered majority; i.e. a stagnant world.

A very low real interest rate could have structural roots involving technological changes. Less ground-breaking innovation also means less investment opportunities where the investor can get huge returns in the future. This lack of innovation can be a cause of why there has been a dearth of investment opportunities, which in turn could mean a significant decline in productivity growth. Even so, an increase in the automation and robotization of industrial tasks directly entails an important rise in productivity growth. Another cause might be also the impact of the financialization of the economy and the misallocation of resources, including among them investment. Less investment in physical capital — machinery, equipment, buildings, robots, etc. – means that workers have at their disposal fewer tools to improve the way they do their jobs or are not able to optimize their work skills or time, so that they don't produce more and there is less better quality output. The workers' skills are also important for productivity. They complement physical capital, and are needed when there is increased innovation, especially through higher automation of processes or tasks.

*“The argument that innovation and technological progress have been slowing down has been making the rounds. [...] The idea is simple and has something to it: in the early 20th century there were many — what Tyler Cowen calls — “low hanging fruits” for the world economy to collect such as antibiotics, electricity-powered factories, radio, TV, planes and automobiles, and not least the great innovation featured on the cover of The Economist, indoor plumbing and sanitation. But these have all been exploited. As we run out of low hanging fruit, the argument goes, we are likely to run out of rapid technological progress and growth will slow down.”* (Acemoglu & Robinson, 2013).

### **2.2.3. Affecting labor productivity and employment-to-population ratio**

#### **2.2.3.1. A dysfunctional economy**

On a deeper level and following the thesis discussed in the previous part, the intrinsic functioning of the new financial economy born in the 80's and over the years exported worldwide could explain why there has been such a Financial Crisis and why after so many years many developed economies seem to be stuck in a chronic situation of stagnation<sup>105</sup>. That is to say, the structure of the economy serves as the explanation for the weak recovery, as well as to explain the several disequilibrium and imbalances occurred in the years previous to the 2007-08 crisis.

The argument goes by saying that the financialization of capitalism has allowed several imbalances within the different economies but also among these same economies. In the last decades, finance has grown sharply as a percentage of GDP while manufacturing has decreased also in terms of GDP in almost all developed economies<sup>106</sup>. This entire situation has helped to create bubbles and financial disequilibrium that eventually affected the whole economy due to the crucial importance that the financial sector – more volatile and risky than manufacturing or the food industry – has acquired within the economic system of developed economies. This situation may also have influenced greatly the low interest rate and the savings glut, as well as in other supply-side causes (the banking sector is of foremost importance for the economy in his role as mediator between the saver and investor and as a lending

<sup>104</sup> For a deeper understanding of Tyler Cowen's ideas, see Cowen (2014).

<sup>105</sup> “In sum, I would suggest to you that the record of industrial countries over the last 15 years is profoundly discouraging as to the prospect of maintaining substantial growth with financial stability [...] changes in the structure of the economy have led to a significant shift in the natural balance between savings and investment, causing a decline in the equilibrium or normal rate of interest that is associated with full employment”. (Summers, 2014)

<sup>106</sup> See The World Bank data base (2013b).

institution). Therefore, as the argument goes, the only way to overcome the current stagnation is by changing completely the economic model<sup>107</sup>.

*“Many observers of the US economy have worried about the impact of financialization—the relative growth of the finance sector—on growth. Part of the concern is the bubble machine, and part is the devotion of considerable resources to non-productive activities.”* (Bernstein, 2013).

### 2.2.3.2. The policy problem

This next cause – mainly defended by economist John Taylor<sup>108</sup> – refers to the fact that a policy, both fiscal and monetary, that is too much discretionary<sup>109</sup> may be creating many of the current economic problems or, at least, could be placating a stronger recovery. Under the assumptions of this thesis, a much more regulated, rule-abiding and less abrupt policy would help to consolidate the recovery to the extent that would decrease the uncertainty in the markets about the policies that could be applied in the future. That is to say, a much more predictable policy would help to consolidate an economic recovery, while discretionary policies actually help destabilize markets, increase uncertainty and consequently weaken the economy<sup>110</sup>. This cause has been called the policy problem. Taylor’s criticism<sup>111</sup> essentially says that what has happened since the onset of the 2008 financial crisis is that government and policy makers have not been sufficiently law-abiding or have not followed the rules established (like the Taylor Rule for monetary policy), thus creating imbalances in the markets who have responded in very different manners to all these different and sudden changes of policies.

*“I have been arguing for a long time that the slowness of the recovery, as well as the deepness of the great recession before that, were likely due to a significant shift in economic policy away from what worked reasonably well in the decades before. Broadly speaking, monetary policy, regulatory policy, and fiscal policy each became more discretionary, more interventionist, and less predictable in the years leading up to the crisis [...] If the “policy is the problem” view proves to be correct, then restoring strong sustainable growth will require changing policy to a more predictable rules-based monetary policy, a less interventionist regulatory policy, a long-term reform-oriented fiscal policy, and other reforms explained in my 2012 book *First Principles: Five keys to Restoring America’s Prosperity*.”* (Taylor, 2014).

<sup>107</sup> This argument is very much related with the “liquidationist” view and the business cycle theory from the Austrian School of Economics. See Krugman (2009).

<sup>108</sup> John Taylor is especially famous for what is called “the Taylor rule”, a monetary-policy rule that helps central bank authorities to know how much the central bank should change the nominal interest rate in response to changes in inflation, output, or other economic conditions.

<sup>109</sup> Fiscal policy can be divided in two types: (1) Discretionary fiscal policy (there is a political decision; that is to say, it does not act automatically but by circumstantial decision); (2) Automatic stabilizers (are features of the structure of modern government budgets, particularly income taxes and welfare spending, that act automatically to dampen fluctuations in real GDP).

<sup>110</sup> Andy Kessler is another economist who has pointed out that in the last decade there has been a policy problem whose main consequence has been leading to misallocation of capital, and hence helping to destabilize the economy. He puts some examples: “The late ‘90s Internet love fest was crazy enough, driven by former FCC Chairman Reed Hundt’s misguided telecom reform that had the effect of keeping data rates artificially high. This created a gold rush to install fiber and build applications that didn’t make economic sense (though electronic commerce, online banking, as well as wireless and broadband deployment would eventually prove productive over the next decade). Bad policy meant capital got overallocated and too quickly, as momentum mutual funds (momos) and day traders furiously drove up stock prices of every company with dot-com in its name for no fundamental reasons. Wall Street trading was broken” (Kessler, 2010).

<sup>111</sup> For a deeper understanding of this relation, see Taylor (2009).



## PART III: RESULTS AND DISCUSSION

The last part was the theoretical introduction to this part. There, the concept of secular stagnation – with the explanation of its main characteristics – was finally defined and the causes that might be currently causing a situation of secular stagnation in many developed economies were exposed and explained. On a general basis, this part consists in showing which the situation of major developed economies is after the Financial Crisis, through a data and graphic analysis – which is, ultimately, analyzing for the different economies the consequences exposed anteriorly –; and also assessing the different causes previously exposed to understand their paper in the current situation of many developed economies, also using different data and diagrams. More specifically, two questions will primarily be answered: (1) are developed economies really suffering from secular stagnation – considering how it has been defined in the previous part –? And (2) which are the most relevant causes, among all those that have been considered, that could explain the situation of developed economies after the Financial Crisis? In short, the first section of this part is an analysis and evaluation of the possibility that the developed world might be experiencing a situation of secular stagnation, from the definition given; while the second section of this part is an analysis and evaluation of what might have caused or might be causing such situation.

### 2. Are developed economies suffering from secular stagnation?

*“I shall argue three prepositions. First, as the United States and other industrial economies are currently configured, simultaneous achievements of adequate growth, capacity utilization, and financial stability appears increasingly difficult. Second, this is likely to be related to a substantial decline in the equilibrium or natural rate of interest. Third, addressing these challenges requires different policy approaches than are represented by the current conventional wisdom”* (Summers, 2014).

Through the use of graphs, diagrams and other data, the economic situation of some developed countries is going to be assessed in this section in order to answer the question posed. In fact, this section consists in a detailed analysis for different countries of the key economic indicators - output growth (usually measured as Real GDP), unemployment and inflation – used to define a situation of stagnation definition. The set of countries chose for the data analysis is approximately the same for each section and each economic indicator, in order to compare the same group throughout the analysis. The set of countries has been selected with the aim to form a representative group of developed economies from North-America, Europa, Asia plus Australia that might help to make a general idea about the overall situation of developed economies. The time period chosen goes from 2002 to the last year with available data. Even so, in two key indicators – Real GDP growth and unemployment –, the time period chosen is longer, to observe the trend from a greater historical perspective. For the economic indicators used for the hysteresis effect the time series goes from 2005 – first year with available data for all the set of countries – until the last year available. These timelines allows observing a clear and useful trend of each indicator for a sufficient period of time to analyze the pre-and post-financial crisis trend.

The analysis will give a better idea of what is happening in the different economies today, how these economies have changed in recent years - especially after the outbreak of the Financial Crisis -, which are the main similarities the different economies share and what seem to be the future tendency of them. In the end, this analysis will serve to give a proper and meditated answer to the question: are developed economies – in general – suffering from secular stagnation?

#### 2.3. Subnormal growth

In the definition’s section, subnormal growth – which is a key feature of secular stagnation – was defined as growth – in terms of Real GDP (RGDP) growth – below the normal growth of an economy during the time previous to the economic shock that leaves this economy in a situation of stagnation. This

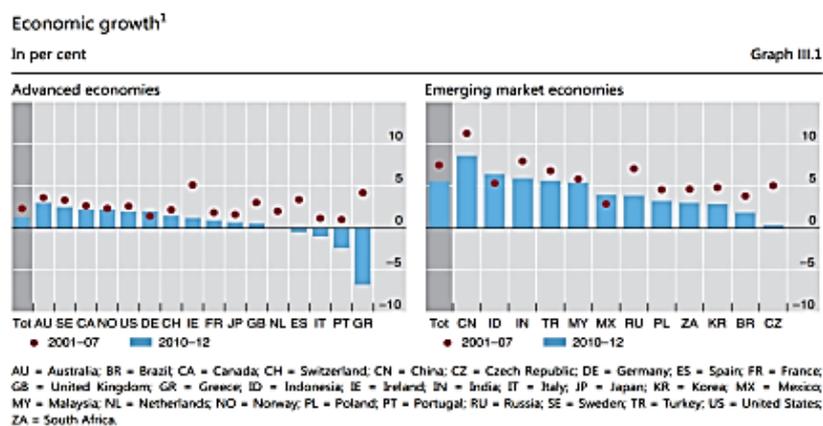
growth rate was set in 2% Real GDP growth. As can be seen in the following table, all the developed countries that appear in the table, with the exception of the US and the UK, have provisions of RGDP growth below 2% RGDP growth for 2014. In 2013, the last official numbers available, not a single country had a growth rate of more than 2% RGDP growth. Countries like Spain, Italy, Portugal and Greece had even negative growth rates. France and Germany, the two biggest economies in the European Monetary Union, had only slightly positive growth rates. The majority of countries are still far from reaching the growth levels achieved in the years previous to the Financial Crisis outbreak. There is, hence, a clear difficulty to reach pre-crisis levels of real GDP growth, despite the policies implemented to stimulate the economy. It is being also the slowest and most expensive recovery since, at least, the Great Depression. Therefore, there exists subnormal growth in almost all developed economies, even seven years after the Financial Crisis. Besides, there is not an entirely encouraging trend for the future, there is not a sufficiently consolidated recovery overall either and there are still serious doubts about the health of many of these economies.

Table 1: Real GDP (RGDP) growth (% change from previous year) [source: own elaboration based on OECD data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Euro area (15 countries)	Canada	Australia
1995	2,15	1,78	..	9,63	2,96	1,94	4,28	2,76	3,53	2,72	2,44	2,74	3,72
1996	1,06	0,82	2,36	9,70	1,00	2,61	3,69	2,45	3,49	3,80	1,47	1,68	3,76
1997	2,16	1,79	3,64	11,27	1,91	1,60	4,41	3,88	4,35	4,49	2,60	4,25	3,59
1998	3,41	1,66	3,36	8,93	1,32	-2,00	5,14	4,47	3,57	4,45	2,68	4,14	5,40
1999	3,18	1,74	3,42	10,96	1,42	-0,20	4,07	4,73	2,94	4,85	2,80	5,00	3,91
2000	3,86	3,30	4,48	10,65	3,89	2,26	3,92	5,01	4,36	4,09	3,95	5,12	3,37
2001	1,80	1,64	4,20	4,98	1,76	0,36	1,97	3,67	2,18	0,95	1,99	1,69	2,72
2002	0,94	0,03	3,44	5,44	0,45	0,29	0,76	2,71	2,30	1,78	0,91	2,80	3,80
2003	0,88	-0,39	5,94	3,75	0,03	1,69	-0,91	3,09	3,95	2,79	0,72	1,93	3,26
2004	2,34	0,69	4,37	4,21	1,56	2,36	1,56	3,26	3,17	3,80	1,97	3,14	3,76
2005	1,85	0,85	2,28	6,08	1,09	1,30	0,78	3,58	3,23	3,35	1,80	3,16	3,30
2006	2,69	3,89	5,51	5,50	2,27	1,69	1,45	4,08	2,76	2,67	3,37	2,62	2,61
2007	2,24	3,39	3,54	4,96	1,55	2,19	2,37	3,48	3,43	1,79	2,98	2,01	4,69
2008	-0,19	0,81	-0,21	-2,18	-1,16	-1,04	-0,01	0,89	-0,77	-0,29	0,25	1,18	2,52
2009	-3,07	-5,08	-3,14	-6,40	-5,53	-5,53	-2,91	-3,83	-5,17	-2,80	-4,40	-2,71	1,56
2010	1,65	3,86	-4,94	-1,07	1,68	4,65	1,94	-0,20	1,66	2,51	1,89	3,37	2,26
2011	2,03	3,40	-7,10	2,17	0,58	-0,45	-1,25	0,05	1,12	1,85	1,63	2,53	2,57
2012	0,05	0,90	-6,98	0,15	-2,39	1,45	-3,23	-1,64	0,28	2,78	-0,61	1,71	3,63
2013	0,30	0,54	-3,86	-0,34	-1,84	1,54	-1,37	-1,22	1,66	1,88	-0,37	2,01	2,45
2014	0,92	1,94	-0,33	1,87	0,52	1,16	1,13	1,04	3,16	2,56	1,20	2,46	2,57

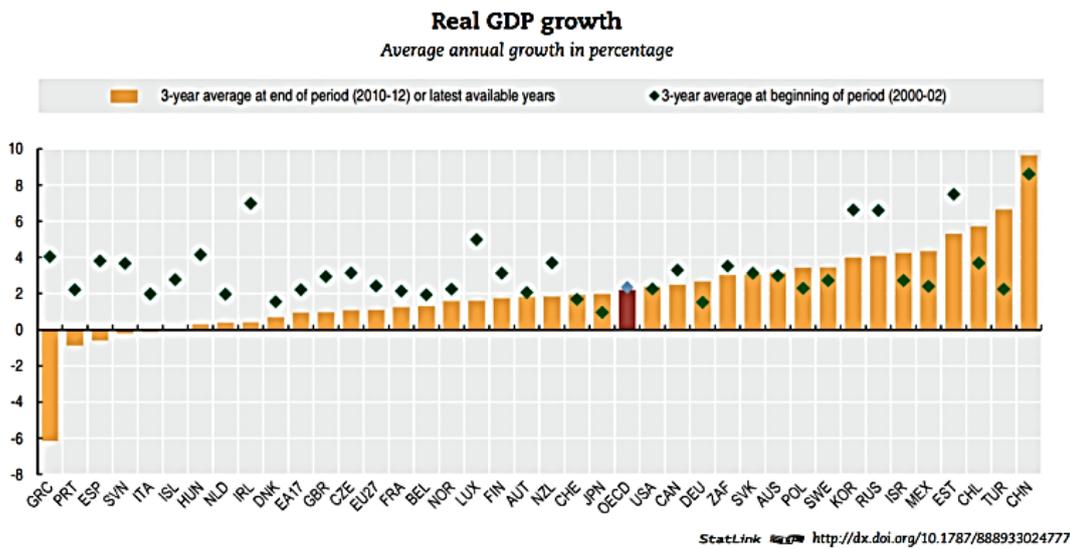
Average annual Real GDP growth has been in the period 2010-12 lower than in the immediate pre-crisis years of 2001-07 in all major developed economies with the exception, by a slight margin, of Germany, which in its case suffered of economic problems in the years previous to the crisis that led the country to implement tough structural reforms. In the rest of countries, including the total, growth rates have been in the two years since the Great Recession officially ended lower than in the seven years previous to the crisis. This situation is especially disturbing in the case of South European economies, where the growth differences are incredibly big among the two periods.

Figure 1: Average annual Real GDP (RGDP) growth [source: BIS (2014)]



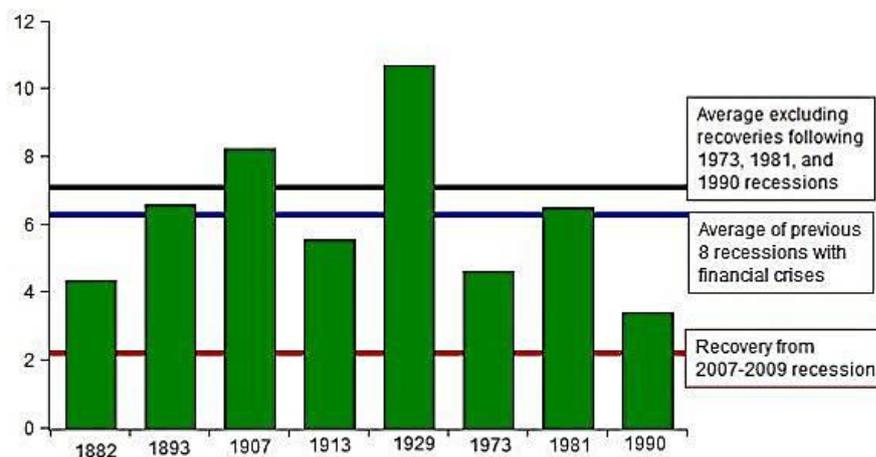
The following diagram again confirms this trend. Almost all economies are far from their respective pre-crisis RGDP trends. These graphs also show the similar tendency and situation of many economies that directly lead to think that there is a more essential problem beyond the different discrepancies of political or economic structure across economies. Developed economies seem to have suffering from a problem that seems to encompass them all despite their obvious differences and situations before and after the crisis. There is an explicit difficulty in consolidating an economic recovery and to effectively stimulate the economy.

Figure 2: Average annual Real GDP (RGDP) growth [source: OECD (2014)]



The current recovery<sup>112</sup> for the U.S. has been slower than the typical recovery from severe recessions associated with financial crises. The recovery that has followed the 2007-08 Financial Crisis is in marked contrast, for instance, to the rapid recovery from the previous severe recession in the early 1980s. Growth from third quarter of 2008 to the fourth quarter of 2013 averaged 2.4% while growth from first quarter of 1983 to the second quarter of 1987 averaged 4.9% (Taylor, 2014). Current economic growth in the US in the first eight quarters of a recovery with a financial crisis has averaged far less than in all previous recoveries.

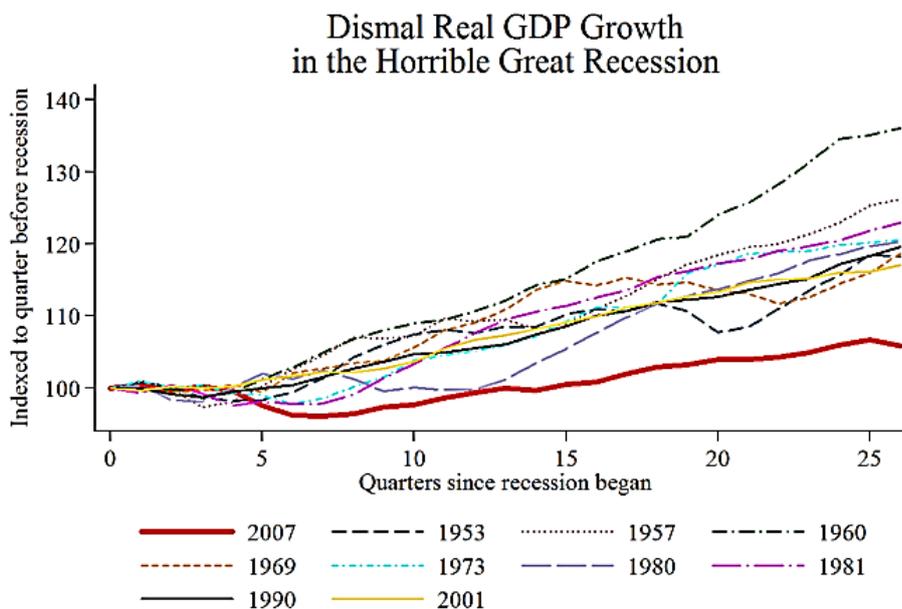
Figure 3: Growth rate in the first 8 quarters of a recovery from previous recessions with a financial crisis (identified by the year the recession began) [source: Taylor (2014)]



<sup>112</sup> A recovery can be defined as “the early part of an economic expansion, immediately after the trough of a recession [see drawing on the article’s right side]” (Taylor, 2014).

This next graph plots Real GDP for every U.S. post-World War 2 recession for 26 quarters after the recession. Each line is indexed to 100 in the quarter before the official NBER (National Bureau of Economic Research) start of the recession. The figure shows that the current recovery is clearly the weakest of all them in terms of Real GDP growth.

Figure 4: Real GDP growth for different US recessions [source: Mian & Sufi (2014b)<sup>113</sup>]



Other studies<sup>114</sup> show that for the US, after twelve quarters since the recession officially began there is approximately a 9% gap in Real GDP growth between the current cycle and the average cycle in previous recoveries. In broad terms, two main factors explain the difference in the growth of real GDP in the current cycle and the average cycle. Slower growth in the underlying productive capacity of the economy (potential GDP) accounts for about two thirds while slower growth of GDP relative to the productive capacity of the economy accounts for about one-third (Real GDP as a ratio of potential GDP). Therefore, the impact that the crisis and the following weak recovery is having over potential GDP is fairly important, and shows how it has affected the rate of growth of potential output (this is analyzed more in debt in the fourth sub-section).

## 2.4. Persistently high unemployment rate

The second key economic indicator to define a period of secular stagnation is unemployment, measured by the unemployment rate<sup>115</sup>. For defining the secular stagnation concept, it was used the expression “persistently high unemployment rate”, which was defined as an unemployment rate of three points above the natural rate of unemployment (or NAIRU).

One of the biggest concerns after the outbreak of the crisis has been the high and persistent levels of unemployment in most developed countries. The following table shows how starting from minimum

<sup>113</sup> “It is true that the recovery in GDP has been steady over the past couple of years – but it’s been steadily disappointing. The recovery out of the Great Recession looks dismal compared to earlier recoveries—we aren’t even close to the recoveries we’ve seen before. The short-run gyrations are gone, but the longer run issue of dismal growth is as important as ever” (Mian & Sufi, 2014b).

<sup>114</sup> See page 2 in CBO (2012). In page 10 there are the contributions to the cyclical variation in Real GDP following recessions. That is to say, which are the factors that explain the weak growth of Real GDP after the Financial Crisis.

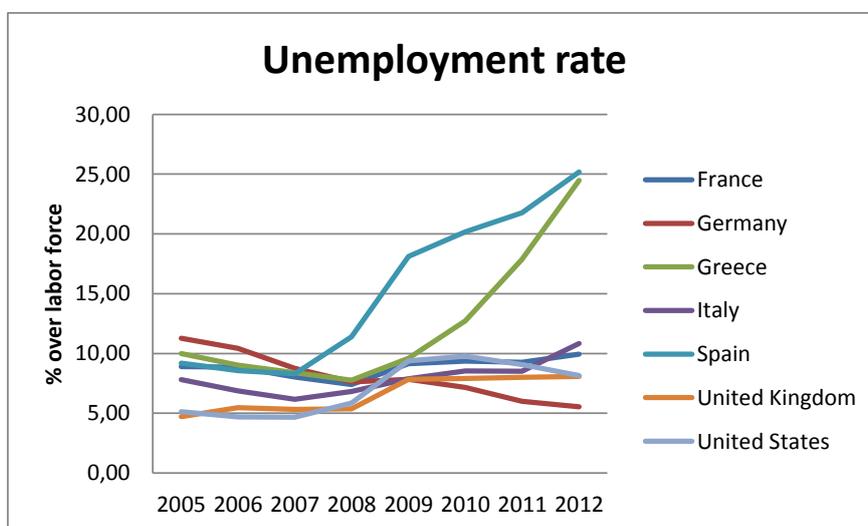
<sup>115</sup> The OECD defines unemployed persons and the unemployment rate this way: “Unemployed persons are defined as those who report that they are without work, that they are available for work and that they have taken active steps to find work in the last four weeks [...] The unemployment rate is defined as the number of unemployed persons as a percentage of the labor force, where the latter consists of the unemployed plus those in paid or self-employed” OECD (2014).

unemployment rates in 2007-08, they rose sharply in the 2009, staying well above the pre-crisis levels for the following years with a clear difficulty to return to previous rates or even rising further. Countries like Portugal, Spain or Greece have reached maximum unemployment rates in 2012, three years since the Great Recession officially ended. Germany is the only country whose unemployment rate is well below pre-crisis levels, due to the structural reforms carried out before the crisis. All the other countries are still far from returning to pre-crisis unemployment rates (in the graph below are shown all table countries – except Canada and Australia – from 2005 – the year with available data for all regions – until 2013).

Table 2: Unemployment rate (% of labor force) [source: own elaboration based on OECD data]

Time	France	Germany	Greece	Hungary	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Euro area (18 countries)	Canada	Australia
1995	..	8,13	..	..	..	..	3,15	..	..	..	5,61	..	9,51	8,47
1996	..	8,86	..	..	..	..	3,35	..	..	..	5,42	..	9,61	8,51
1997	..	9,82	..	..	..	..	3,40	..	..	..	4,95	..	9,12	8,36
1998	..	9,20	11,22	..	7,57	11,84	4,11	..	..	..	4,51	..	8,28	7,68
1999	..	8,41	12,10	7,00	5,62	11,43	4,68	4,53	15,71	..	4,22	..	7,59	6,87
2000	..	7,76	11,35	6,42	4,33	10,59	4,72	4,04	13,92	5,58	3,99	..	6,82	6,29
2001	..	7,84	10,78	5,73	3,91	9,52	5,03	4,01	10,55	5,01	4,73	..	7,23	6,74
2002	..	8,65	10,32	5,83	4,44	9,01	5,38	5,00	11,47	5,13	5,78	..	7,67	6,37
2003	8,46	9,64	9,71	5,87	4,74	8,67	5,26	6,27	11,48	4,97	5,99	..	7,58	5,93
2004	8,85	9,79	10,49	6,08	4,54	8,05	4,72	6,65	10,97	4,70	5,53	..	7,18	5,40
2005	8,88	11,17	9,85	7,19	4,34	7,72	4,43	7,61	9,16	4,76	5,07	9,01	6,76	5,03
2006	8,83	10,25	8,89	7,46	4,41	6,78	4,14	7,66	8,51	5,37	4,62	8,33	6,33	4,79
2007	8,01	8,66	8,28	7,36	4,57	6,09	3,84	7,98	8,26	5,28	4,62	7,45	6,03	4,38
2008	7,39	7,53	7,65	7,82	6,03	6,74	3,99	7,59	11,33	5,63	5,78	7,50	6,13	4,23
2009	9,12	7,74	9,46	10,01	12,01	7,79	5,07	9,47	18,01	7,55	9,27	9,51	8,26	5,56
2010	9,31	7,07	12,53	11,16	13,85	8,41	5,05	10,80	20,06	7,78	9,62	10,07	8,00	5,21
2011	9,19	5,92	17,66	10,94	14,62	8,40	4,58	12,74	21,64	8,01	8,95	10,10	7,45	5,08
2012	9,84	5,47	24,24	10,93	14,67	10,70	4,35	15,65	25,03	7,86	8,07	11,30	7,24	5,22
2013	9,89	5,32	27,25	10,24	13,05	12,19	4,03	16,25	26,36	7,50	7,38	11,88	7,05	5,65

Figure 5: Unemployment rate (% of labor force) [source: own elaboration based on OECD data]



As explained, in the definition's section, unemployment rates have been in 2013 three percentage points above the NAIRU in all countries except in the US, the UK, Japan, France and Germany. In Mediterranean economies the unemployment rates are well above the NAIRU and there is no clear tendency towards a sharp reduction and its matching with the NAIRU in the near future. In the other countries unemployment rates decreased, at the same time that the NAIRU was increasing. Even so, it's important to note that when unemployment is high, some persons become discouraged and stop looking for work so that they are then excluded from the labor force. This implies that the unemployment rate may fall, or stop rising, even though there has been no underlying improvement in the labor market.

Table 3: Non-Accelerating Inflation rate of Unemployment (NAIRU) or Natural rate of Unemployment (% of labor force) [source: own elaboration based on OECD data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Euro area (15 countries)	Canada	Australia
1995	9,8	7,2	9,4	11,6	9,4	3,1	6	15,8	8,2	5,6	9,1	9,2	8,1
1996	9,9	7,5	9,7	11	9,5	3,2	6,1	15,5	7,8	5,5	9,2	9	7,8
1997	9,9	7,7	9,9	10,3	9,5	3,4	6	15	7,3	5,5	9,2	8,7	7,5
1998	9,7	7,7	10,2	9,6	9,5	3,5	5,9	14,4	6,9	5,4	9,1	8,4	7,3
1999	9,5	7,7	10,5	9	9,3	3,7	5,8	13,6	6,5	5,4	8,9	8,1	6,9
2000	9	7,7	10,4	8,5	9,1	3,8	5,8	13	6,1	5,4	8,7	7,9	6,4
2001	8,7	7,8	10,4	8,1	8,8	3,9	6	12,4	5,8	5,4	8,6	7,7	6,2
2002	8,6	7,9	10,3	7,8	8,6	4	6,3	12,2	5,7	5,5	8,5	7,6	6
2003	8,7	8,1	10,1	7,6	8,3	4,1	6,6	11,9	5,6	5,5	8,5	7,5	5,7
2004	8,7	8,2	10,2	7,5	8	4,1	7	11,8	5,6	5,6	8,5	7,3	5,6
2005	8,7	8,3	10	7,5	7,8	4,1	7,4	11,8	5,6	5,6	8,5	7,2	5,4
2006	8,7	8,2	9,8	7,5	7,6	4,1	7,7	12	5,8	5,6	8,5	7,1	5,2
2007	8,5	8	9,9	7,6	7,4	4,2	8,1	12,6	6	5,7	8,4	7,1	5,1
2008	8,4	7,7	9,9	7,7	7,4	4,2	8,4	13,5	6,2	5,8	8,5	7,2	5,1
2009	8,8	7,7	10,5	8,8	7,6	4,3	9,1	14,8	6,6	6	8,8	7,4	5,2
2010	8,9	7,5	11,3	9,7	7,6	4,3	9,5	15,6	6,7	6,1	9	7,4	5,3
2011	9	7,3	11,9	10,2	7,6	4,3	10,8	16,2	6,9	6,1	9,2	7,4	5,3
2012	9	7,1	12,2	10,5	7,6	4,3	11	16,5	6,9	6,1	9,1	7,4	5,3
2013	9	6,8	12,3	10,6	7,6	4,3	11	16,5	6,9	6,1	9,1	7,4	5,3

Therefore, there are persistently high unemployment rates in a representative majority of developed countries, being these unemployment rates throughout the crisis near to three percent points higher – or even more – to their respective NAIRU. Unlike in Real GDP growth, over unemployment rates exert higher influence particular factors from each country like the labor policies that are implemented, the structure of the labor market and the structure of the economy as a whole. Yet, the common trend in the majority of countries is that the unemployment rate has remained stubbornly high for a long period of time if compared with pre-crisis levels and there is and there has been a clear incapacity to swiftly lower it using conventional and even unconventional policies. In this regard, the unemployment rate, like Real GDP growth, points to a deeper problem shared in greater or lesser extent by many countries. Despite the different values among countries there seems to be a common background situation for them all.

## 2.5. Subnormal inflation and low interest rates

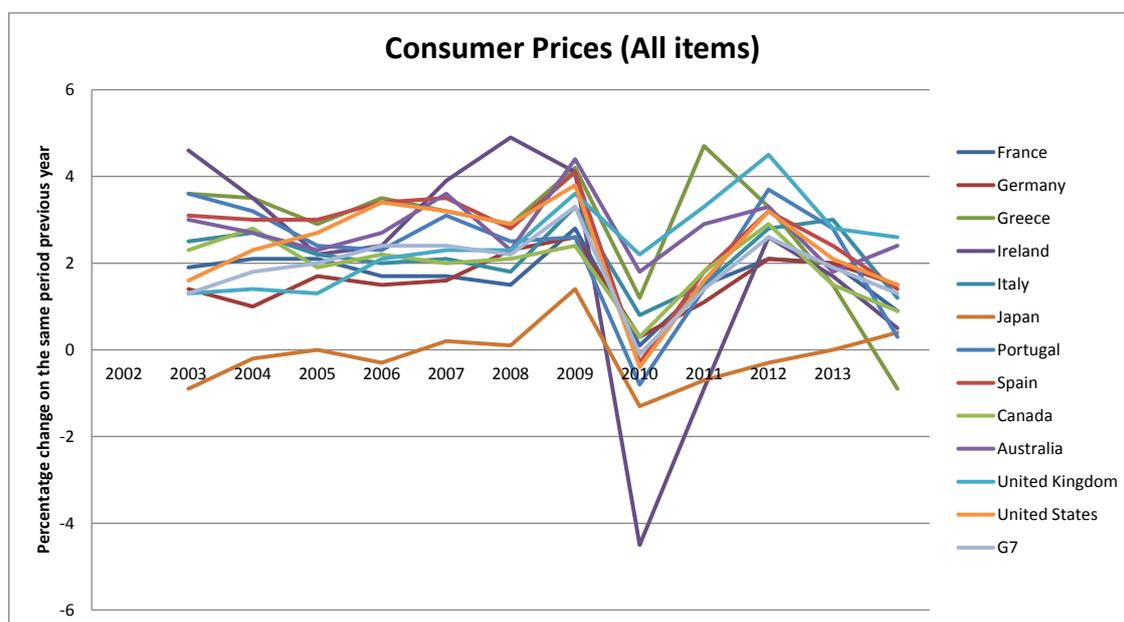
Finally, inflation was the third key economic indicator used to define the concept of secular stagnation. Just like happened with Real GDP, a period of secular stagnation is defined as one where there is subnormal inflation, defined as consistently lower than the central bank's 2% target. Each central bank uses a different estimation for inflation, so what matters is what is the actual rate of inflation measure by each central bank compared with their 2% target, which is the most widely inflation target accepted by all major central banks. To analyze whether there has really been subnormal inflation in recent years, different estimates will be used and the current values will be compared with those prior to the crisis to assess the trend followed.

Among the different ways that can be used to estimate the rate of inflation, the most common is the consumer price index (CPI) which measures the changes in prices of a basket of goods and services purchased by a representative set of households. One disadvantage of the CPI is that it is a narrow measure of inflation that does not measure changes in the prices of other goods and services.

Table 4: Consumer Price Index (CPI) (% change previous year) [source: own elaboration based on OECD data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	Canada	Australia	United Kingdom	United States	G7	OECD - Europe
2002	1,9	1,4	3,6	4,6	2,5	-0,9	3,6	3,1	2,3	3	1,3	1,6	1,3	4,7
2003	2,1	1	3,5	3,5	2,7	-0,2	3,2	3	2,8	2,7	1,4	2,3	1,8	3
2004	2,1	1,7	2,9	2,2	2,2	0	2,4	3	1,9	2,3	1,3	2,7	2	2,4
2005	1,7	1,5	3,5	2,4	2	-0,3	2,3	3,4	2,2	2,7	2,1	3,4	2,4	2,4
2006	1,7	1,6	3,2	3,9	2,1	0,2	3,1	3,5	2	3,6	2,3	3,2	2,4	2,5
2007	1,5	2,3	2,9	4,9	1,8	0,1	2,5	2,8	2,1	2,3	2,3	2,9	2,2	2,6
2008	2,8	2,6	4,2	4,1	3,3	1,4	2,6	4,1	2,4	4,4	3,6	3,8	3,3	3,8
2009	0,1	0,3	1,2	-4,5	0,8	-1,3	-0,8	-0,3	0,3	1,8	2,2	-0,4	-0,1	1,2
2010	1,5	1,1	4,7	-0,9	1,5	-0,7	1,4	1,8	1,8	2,9	3,3	1,6	1,4	2,3
2011	2,1	2,1	3,3	2,6	2,8	-0,3	3,7	3,2	2,9	3,3	4,5	3,2	2,6	3,2
2012	2	2	1,5	1,7	3	0	2,8	2,4	1,5	1,8	2,8	2,1	1,9	2,9
2013	0,9	1,5	-0,9	0,5	1,2	0,4	0,3	1,4	0,9	2,4	2,6	1,5	1,3	1,9

Figure 6: Consumer Price Index (CPI) (% change previous year) [source: own elaboration based on OECD data]



The table above, but especially the graph, shows very clearly a downward tendency for inflation in all economies – with the exception of Japan, who after years of deflation has implemented an ultra-aggressive monetary policy – since 2011-12. The minimum was reached in all economies almost in the same period of time, in 2010. Later, there was upturn in 2011 and even in 2012 but the rates fell further in 2013 to near the minimums levels reached in the worst years and there is no clear evidence that the inflation rate will recover, rather the opposite. It is interesting noting the stable tendency of inflation from 2002 until 2008, with a spike in 2009 due to rising energy prices.

Countries like France, Japan, Ireland, Portugal and Canada have had just slightly positive inflation rates in 2013 and only Australia and the UK – countries that have pursued aggressive monetary policies – have inflation rates slightly above their central banks' 2% target (the Bank of Australia has a somewhat higher inflation target of 2 - 3 % which could explain its higher rate). Therefore, almost all major economies are suffering a period of disinflation, where the increase in the Consumer Price Level slows down from the previous period, although the prices are still rising – except in Greece that is already suffering from deflation, a decrease in the general price level of goods and services –.

There is a much broader indicator of inflation: the GDP deflator, which is an implicit, not an explicit deflator. It is derived by dividing an index of GDP measured in current prices by a chain volume index of GDP, both, typically, derived using the expenditure approach:

$$GDP\ deflator = \frac{Nominal\ GDP}{Real\ GDP} \cdot 100^{116}$$

While the CPI measures the price changes of goods and services consumed by households, the GDP deflator measures the price changes of goods and services produced by a country<sup>117</sup>. The GDP deflator gives a broader view of inflation insofar as it is not based on a fixed basket of goods and services. In fact, the "basket" for the GDP deflator is allowed to change from year to year with people's

<sup>116</sup> The nominal GDP of a given year is computed using that year's prices, while the real GDP of that year is computed using the base year's prices.

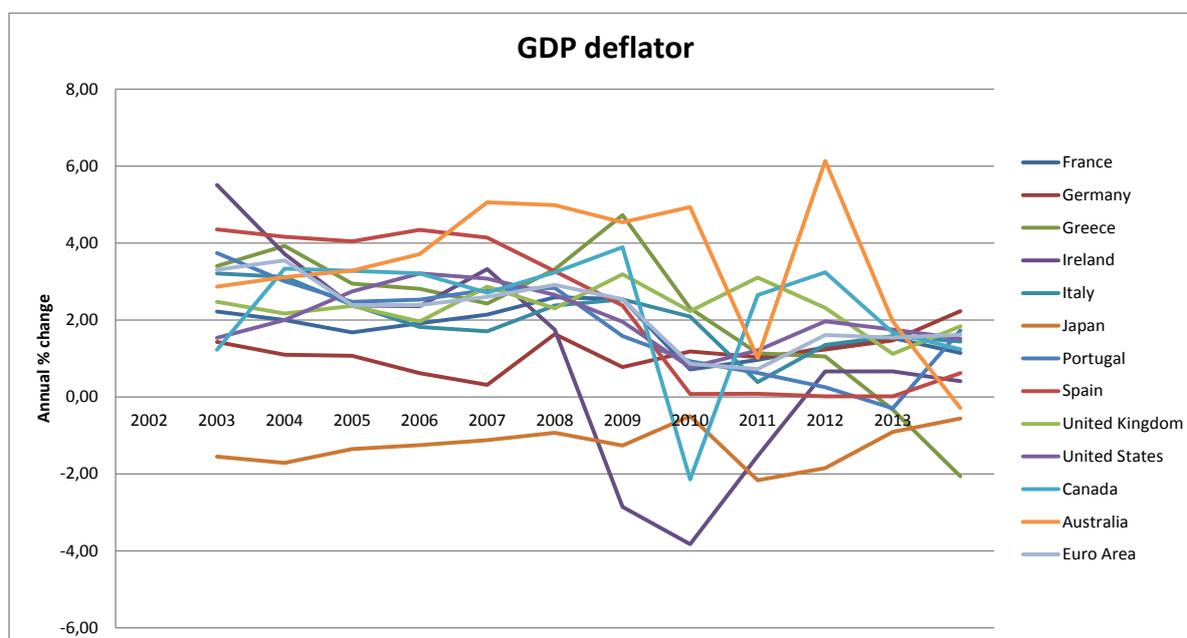
<sup>117</sup> "Hence, the treatment of exports and imports merits special attention. The GDP deflator will go up, indicating more inflation, if the prices of exports rise but although higher inflation is usually thought of as a bad thing, it may actually be beneficial to a country if the prices of its exports rise, since it is non-residents who pay the higher prices; although this may be coupled with a fall in the value of the country's currency. Conversely, price rises in imports will reduce the GDP deflator, although, following the same reasoning this may not necessarily be a good thing for residents" OECD (2014).

consumption and investment patterns. Thus, inflation is here measured by the annual growth rate of the GDP implicit deflator showing the rate of price change in the economy as a whole.

Table 5: GDP deflator (Annual % change) [source: own elaboration based on OECD data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Canada	Australia	Euro Area
2002	2,22	1,43	3,40	5,51	3,21	-1,55	3,74	4,35	2,47	1,54	1,23	2,87	3,30
2003	2,00	1,10	3,92	3,72	3,12	-1,71	3,01	4,16	2,17	2,00	3,34	3,11	3,55
2004	1,67	1,07	2,95	2,38	2,39	-1,35	2,47	4,04	2,36	2,74	3,28	3,28	2,38
2005	1,91	0,62	2,81	2,36	1,82	-1,25	2,52	4,34	1,96	3,21	3,21	3,71	2,38
2006	2,14	0,31	2,43	3,32	1,71	-1,12	2,78	4,14	2,86	3,07	2,71	5,06	2,60
2007	2,59	1,63	3,32	1,75	2,37	-0,93	2,83	3,27	2,30	2,65	3,24	4,98	2,91
2008	2,54	0,77	4,72	-2,86	2,53	-1,27	1,58	2,38	3,19	1,95	3,89	4,54	2,54
2009	0,72	1,18	2,30	-3,83	2,09	-0,50	0,93	0,08	2,23	0,77	-2,14	4,93	0,86
2010	0,96	1,03	1,14	-1,53	0,39	-2,16	0,62	0,08	3,10	1,21	2,65	1,01	0,72
2011	1,29	1,23	1,05	0,67	1,35	-1,85	0,25	0,02	2,31	1,96	3,24	6,14	1,61
2012	1,53	1,47	-0,33	0,67	1,58	-0,91	-0,30	0,01	1,12	1,75	1,67	1,96	1,54
2013	1,14	2,23	-2,07	0,41	1,44	-0,56	1,73	0,62	1,83	1,51	1,24	-0,29	1,62

Figure 7: GDP deflator (Annual % change) [source: own elaboration based on OECD data]



The GDP deflator data certainly help to understand the trend of inflation in developed countries and perfectly complement the CPI data analyzed above. The graph shows that the GDP deflator has not fallen as sharply as inflation in the majority of countries (paradoxically it has felt sharply in Canada and Australia, two countries whose Consumer Price Indexes didn't fall in excess and certainly remained quite around their central banks' target). What the graph shows is a slight downward trend in all developed economies – maybe with the exception of Japan where the index seems to surge – since 2003. This points out to the fact that developed economies will tend to have lower inflation rates in the future or, at least, that inflation does not seem rebound strongly in the near future despite the monetary policy pursued by the majority of important central banks.

Concluding, the results from both the GDP deflator and the Consumer Price Index underline three main aspects to consider: (1) there is and there has been subnormal inflation in almost all the developed economies analyzed; (2) since the 2000's, there is a downward trend in inflation, which has been heightened by the financial crisis and the subsequent recession and (3) there are no signs that inflation will rebound strongly in the coming years, rather the opposite; it is expected to maintain its

current levels, grow slightly or even fall even more in some countries, despite the policies implemented to stimulate the economy.

Persistently below-target inflation rates also signal that interest rates will remain low for a long period of time (Fisher effect<sup>118</sup>). In the definition of secular stagnation it was also pointed out that this situation often entails persistently low interest rates, which certainly seems that will be the norm in the following years insofar as there is no clear evidence that inflation does not seem that inflation will rise sharply. Low interest rates for a long period of time could lead, following Larry Summers's reasoning, to the creation of bubbles. Yet, raising interest rates before the different economies are really in the path of a consolidated recovery might push them into another harmful recession, just like happened in the Euro Area when the ECB raised interest rates in 2011 thinking that the crisis had passed. Interest rates will be analyzed more in depth below, in the causes' section.

## 2.6. Hysteresis effect

Finally, it's important to analyze the hysteresis effect; that is to say, how the above problems may have mainly affected potential GDP and the natural rate of unemployment. Therefore, although secular stagnation was defined in terms of subnormal growth, rather than in terms of sub potential growth, the slowdown in the rate of growth of potential output – measured as potential GDP – was also an important consequence derived from that situation. When an economy stagnates for a long period of time, this situation, that is not conjunctural, will affect structural components of the economy and thus affecting potential GDP, whose growth rate will become slower<sup>119</sup>. This means that in the future, if the economy is again in full employment and begins to work on potential, this potential will be lower than the expected before the economy entered in a situation of secular stagnation.

### 2.6.1. Output gap

Before analyzing the impact that the current crisis has had over potential GDP<sup>120</sup>, there is a first interesting economic indicator that serves to analyze how has been working the economy compared with its every year potential. Thus, the magnitude of the demand shock (short term) can be observed and know whether it is persistent enough to consistently affect the long term. The indicator used is the output gap which shows the deviation of actual GDP from potential GDP as a per cent of potential GDP. That is to say, it shows how far from potential GDP (in percentage) is the economy.

Table 6: Output gap of the total economy (% of potential GDP) [source: own elaboration based on OECD data]

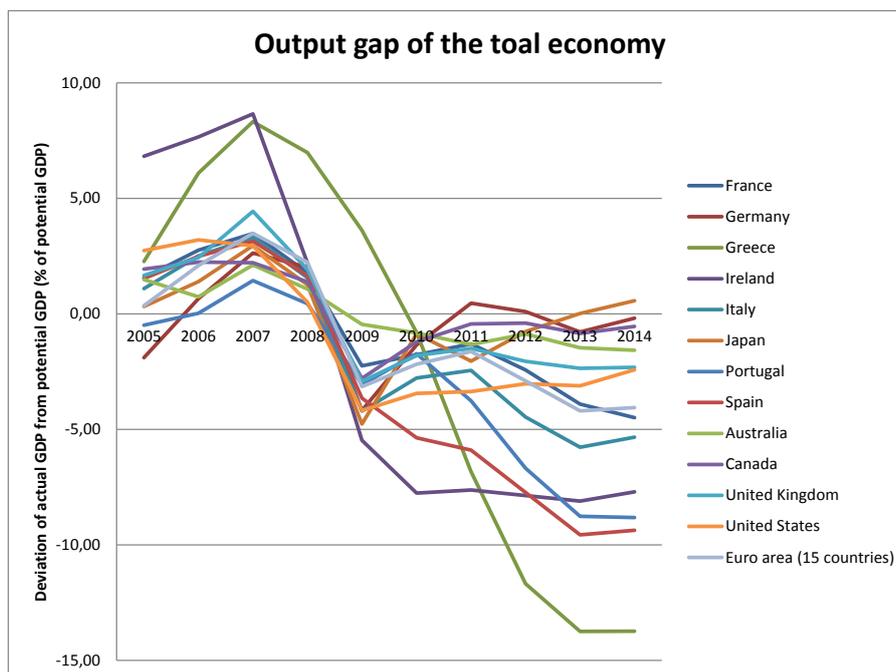
Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	Australia	Canada	United Kingdom	United States	Euro area (15 countries)
2005	1,56	-1,90	2,27	6,82	1,09	0,32	-0,49	1,53	1,49	1,93	1,66	2,74	0,35
2006	2,76	0,65	6,09	7,65	2,50	1,40	0,03	2,49	0,73	2,24	2,44	3,20	2,09
2007	3,47	2,63	8,32	8,66	3,31	2,95	1,44	3,14	2,11	2,21	4,43	2,95	3,48
2008	1,78	2,01	6,98	2,21	1,56	1,26	0,44	1,65	1,08	1,39	1,92	0,51	2,23
2009	-2,25	-4,18	3,61	-5,47	-4,21	-4,77	-3,06	-3,65	-0,46	-2,80	-2,92	-4,19	-3,15
2010	-1,78	-1,35	-0,82	-7,76	-2,78	-0,86	-1,73	-5,37	-0,83	-1,21	-1,81	-3,44	-2,18
2011	-1,30	0,46	-6,84	-7,62	-2,45	-2,05	-3,76	-5,90	-1,33	-0,44	-1,50	-3,37	-1,63
2012	-2,43	0,10	-11,68	-7,87	-4,47	-0,77	-6,69	-7,74	-0,88	-0,41	-2,06	-3,02	-2,90
2013	-3,91	-0,78	-13,75	-8,11	-5,78	0,01	-8,77	-9,57	-1,47	-0,85	-2,36	-3,12	-4,20
2014	-4,49	-0,19	-13,74	-7,71	-5,34	0,57	-8,82	-9,37	-1,58	-0,54	-2,31	-2,43	-4,06

<sup>118</sup> “In the long-run, when prices are flexible, a reduction in money growth would lower inflation, and this in turn would lead to lower nominal interest rates” (Mankiw, 2010, 353-354). Taking into account that, according to Milton Friedman, “inflation is always and everywhere a monetary phenomenon”, it is also worth remembering again that “low interest rates are generally a sign that money has been tight, as in Japan; high interest rates, that money has been easy” (Sumner, 2009).

<sup>119</sup> Larry Summers recently affirmed this too: “You do not, however, get to the long run except through the short run, and what happens in the short run has a profound impact on the long run. To reverse Keynes a bit, if you die in the short run, there is no long run” (Summers, 2014).

<sup>120</sup> “Today, it is increasingly clear that the trend in growth can be adversely affected over the longer term y what happens in the business cycle” (Summers, 2014).

Figure 8: Output gap of the total economy (% of potential GDP) [source: own elaboration based on OECD data]



The table and graph shows that since the end of 2008, all major economies have worked under potential, some of them well below their potential. Only Germany in 2011 – although in 2012 it began to work under potential again – and Japan starting from 2013 have worked slightly above potential for some time since the Financial Crisis. Furthermore, there has been a pronounced trend since 2008 in all developed economies by which current GDP each year was progressively falling compared with its potential; i.e., there has been a growing tendency towards widening the output gap, a situation that looks like it might have changed since 2013<sup>121</sup>. This change of tendency between the years previous to the crisis and the years after have been especially pronounced in South-European countries (like Greece, Spain, Portugal, or Italy), countries that before the crisis their positive output gap was wider, too. The graph shows in general that 2008 entailed a big shock for all major economies, and the difficulty that has existed for the different economies to return to its potential in subsequent years exposes the severity of the crisis and the strong impact that it has had on them. It also shows, once again, a common trend for most developed countries. After more than six years since the turning point, many economies are still far from their potential and some don't even show any sign of strong recovery.

### 2.6.2. Potential GDP

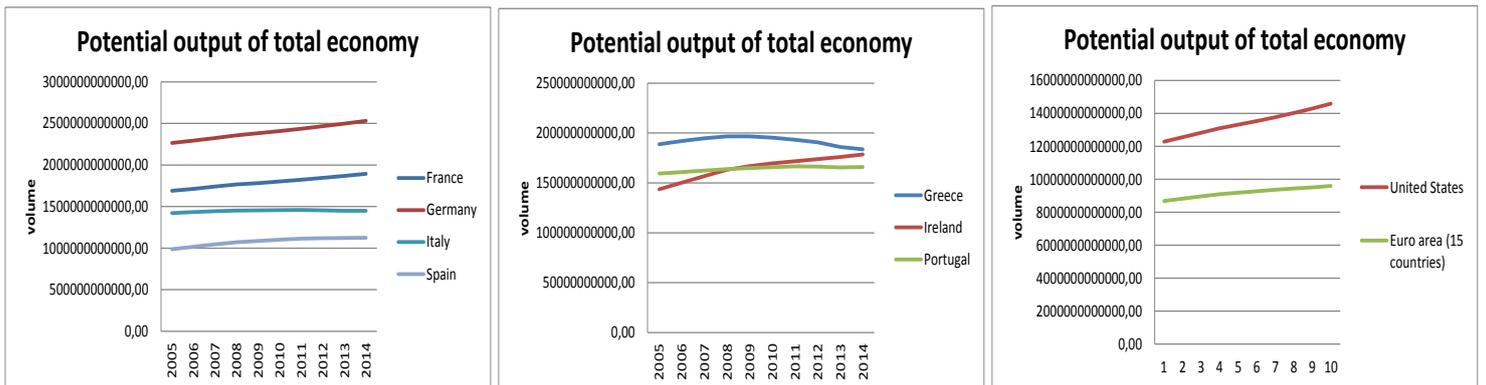
The following table shows potential output of total economy for the same set of representative developed economies. It shows the total volume in currency units from each country (in this case it is not so important a real comparison among countries but simply analyzing the trends they follow altogether). In the three graphs below the table, there is a comparison between the path of potential GDP for the biggest Euro Area economies (France, Germany, Italy and Spain), a comparison from three of the most damaged economies in Europe (Portugal, Greece and Ireland) and a comparison between the Euro Area and the US, the two biggest developed zones in the world.

<sup>121</sup> “Yet, it must be acknowledged that essentially all of the convergence between the economy’s level of output and its potential has been achieved not through the economy’s growth, but through revisions in its potential [...] In other words, through this recovery, we have made no progress in restoring GDP to its potential [...] The recovery has not represented a return to potential; and, according to the best estimates we have, the downturn has cast a substantial shadow on the economy’s future potential” (Summers, 2014).

Table 7: Potential GDP (absolute values) [source: own elaboration based on OECD data]

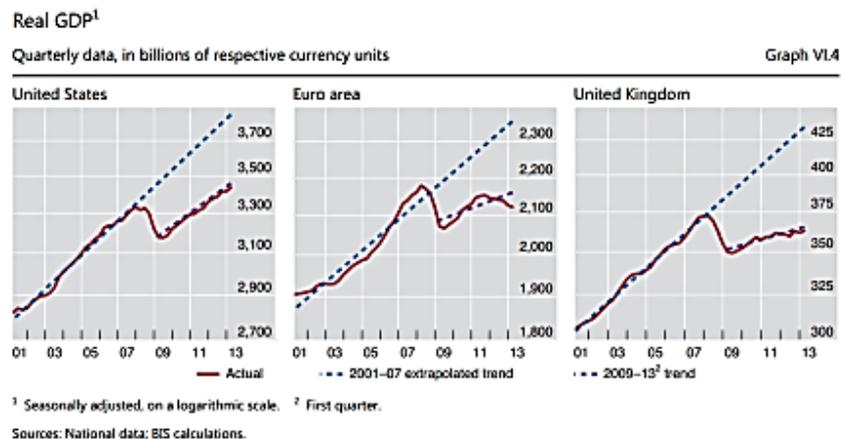
Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	Australia	Canada	United Kingdom	United States	Euro area (15 countries)
2005	1,69E+12	2,26E+12	1,89E+11	1,44E+11	1,42E+12	5,02E+14	1,59E+11	9,86E+11	1,19E+12	1,47E+12	1,36E+12	1,23E+13	8,68E+12
2006	1,71E+12	2,29E+12	1,92E+11	1,50E+11	1,43E+12	5,05E+14	1,61E+11	1,02E+12	1,23E+12	1,50E+12	1,39E+12	1,26E+13	8,82E+12
2007	1,74E+12	2,32E+12	1,95E+11	1,57E+11	1,44E+12	5,09E+14	1,62E+11	1,05E+12	1,28E+12	1,53E+12	1,41E+12	1,28E+13	8,97E+12
2008	1,77E+12	2,36E+12	1,97E+11	1,63E+11	1,45E+12	5,12E+14	1,64E+11	1,07E+12	1,32E+12	1,56E+12	1,43E+12	1,31E+13	9,10E+12
2009	1,78E+12	2,38E+12	1,97E+11	1,67E+11	1,46E+12	5,14E+14	1,65E+11	1,09E+12	1,36E+12	1,58E+12	1,44E+12	1,33E+13	9,19E+12
2010	1,80E+12	2,41E+12	1,95E+11	1,70E+11	1,46E+12	5,17E+14	1,66E+11	1,10E+12	1,40E+12	1,61E+12	1,45E+12	1,35E+13	9,27E+12
2011	1,82E+12	2,44E+12	1,93E+11	1,72E+11	1,46E+12	5,20E+14	1,67E+11	1,11E+12	1,44E+12	1,64E+12	1,46E+12	1,38E+13	9,36E+12
2012	1,85E+12	2,47E+12	1,91E+11	1,74E+11	1,46E+12	5,24E+14	1,66E+11	1,12E+12	1,49E+12	1,66E+12	1,48E+12	1,40E+13	9,44E+12
2013	1,87E+12	2,50E+12	1,86E+11	1,76E+11	1,45E+12	5,28E+14	1,66E+11	1,12E+12	1,54E+12	1,70E+12	1,49E+12	1,43E+13	9,51E+12
2014	1,90E+12	2,53E+12	1,84E+11	1,79E+11	1,45E+12	5,32E+14	1,66E+11	1,12E+12	1,59E+12	1,73E+12	1,51E+12	1,46E+13	9,60E+12

Figure 9: Potential GDP (absolute values) [source: own elaboration based on OECD data]



The following graph is especially interesting because it shows actual RGDP compared with what was the pre-crisis trend in the Euro Area, the US and the UK, three very significant economies. There is, in the three cases, a wide output between the trend and actual RGDP. This gap widened heavily between 2008 and 2009 and since then the economy seems to have stagnated, never really approaching the trend. The values compared in this case are in absolute numbers. In the US the current trend is almost parallel to the pre-crisis trend but on a lower level. In the Euro Area and the UK, however, there is a gap whose tendency is to widen further in the future with respect to the pre-crisis trend. This shows that not only exists subnormal growth, but also that there is no clear evidence that RGDP could reach previous pre-crisis levels in the near future, rather the opposite.

Figure 10: Real GDP, Potential GDP trend and actual trend (absolute values) [source: BIS (2014)]



Looking at the data and also at the trend shown by the graphs, there are three main conclusions that can be extracted: (1) the economies hardest hit by the crisis are also economies whose potential GDP has suffered more, with a clear trend either downward or stagnant (Greece, Ireland and Portugal); (2) The Euro Area has suffered a slowdown in GDP growth potential, which, though still growing, does

so much more slowly than previously to the outbreak of the crisis; (3) Three of the biggest Euro Area economies (France, Italy and Spain) has also seen a slowdown in their potential GDPs. Germany is one of the few countries whose potential GDP, although has also suffered, has done less than most countries.

Therefore, there seems to be a clear impact over potential GDP<sup>122</sup>, especially in those countries most damaged by the crisis, whose potential GDP tendency has changed alarmingly since the outbreak of the crisis. This crisis has sufficient evidence to suggest that potential GDP has been severely affected and may in the future continue to suffer, which has immediate effects on the ability of growing for developed economies and their potential situation in the future.

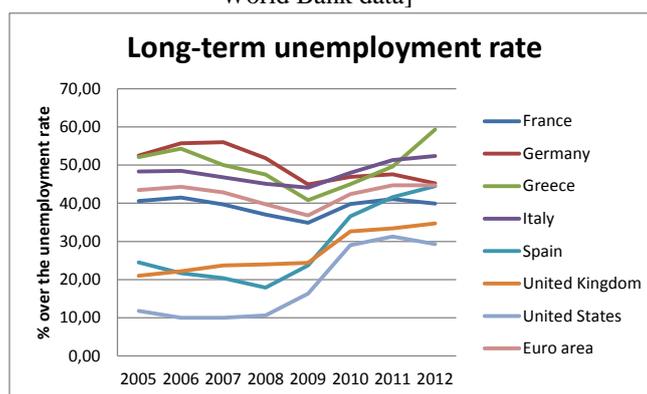
### 2.6.3. Long-term unemployment rate

For the analysis of the long-lasting effects of persistently high unemployment rates it is interesting to assess the trend followed by the long-term unemployment rate<sup>123</sup>. This rate is of particular concern to policy makers insofar as it has a very negative effect on those who suffer it and in society in general. The long-term unemployment rate is usually high after tough economic shocks and during recessions – when GDP growth declines – and it tends to indicate that labor markets are operating inefficiently. Lower rates of long-term unemployment may also occur at the onset of an economic downturn due to rising inflow of newly unemployed persons (long-term unemployment is calculated as a percentage over the total unemployment rate). This certainly happened during the first years of the job crisis, when the unemployment rate rose sharply. Subsequently, long-term unemployment may gradually begin to unfold in case of prolonged crisis as is currently the case in the majority of countries.

Table 8: Long-term unemployment rate (% over employment rate) [source: own elaboration based on World Bank data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Euro area	Canada	Australia
2005	40,60	52,50	52,10	33,30	48,30	33,30	48,00	24,50	21,00	11,80	43,46	9,20	18,30
2006	41,50	55,70	54,30	31,40	48,50	33,00	50,10	21,70	22,20	10,00	44,32	8,30	18,10
2007	39,70	56,00	50,00	29,10	46,80	32,00	47,00	20,40	23,70	10,00	42,86	7,10	15,40
2008	37,00	51,80	47,50	27,00	45,10	33,30	47,20	17,90	24,00	10,60	39,72	6,70	14,90
2009	34,90	44,90	40,80	28,90	44,10	28,50	43,90	23,70	24,40	16,30	36,79	7,50	14,70
2010	39,80	46,90	45,00	48,70	48,00	37,60	52,00	36,60	32,60	29,00	42,39	11,50	18,50
2011	41,10	47,60	49,60	58,60	51,30	39,40	48,20	41,60	33,40	31,30	44,72	13,00	18,90
2012	39,90	45,20	59,30	61,20	52,40	38,50	48,70	44,50	34,70	29,30	44,69	11,90	20,30

Figure 11: Long-term unemployment rate (% over employment rate) [source: own elaboration based on World Bank data]



<sup>122</sup> US Potential GDP has also been affected by the current situation. The potential of the US economy has been revised downwards by 5 percent, and it does not appear to be temporary decline either, but a sustained and long-term decline. The US economy is now 10 percent points below what the potential GDP for 2014 was estimated in 2007. Of that 10 percent gap, 5 percent has already been accommodated into a reduction in the estimate of its potential, and 5 percent remains as an estimate of its GDP gap (therefore, the GDP gap is mostly decreasing due to a downward revision of potential GDP, not because actual GDP is growing strongly). There has not only been no progress in restoring GDP to its potential, but there has not been any progress in arrest the fall in potential GDP growth (CBO, 2012)

<sup>123</sup> Long-term unemployment is defined by the OECD “as referring to people who have been unemployed for 12 months or more. The ratios calculated here show the proportion of these long-term unemployed among all unemployed, hereafter called long-term unemployment rates. Lower duration limits (e.g. six months or more) are sometimes considered in national statistics on the subject” OECD (2014). In this case the data has been extracted from the World Bank data base (World Bank, 2014).

The table above – and the graph comparing some of these countries – shows the long-term unemployment rates for a set of representative developed countries from 2005 (before the crisis) until 2012. Indeed, the lowest rates were achieved in 2009-10, which were the worst months for the unemployment rate. The tendency has then been for a steady increase in the long-term unemployment rate in all the countries shown in the table, with exception of Germany, for reasons already exposed before. There has been an important rise of this rate in the US, Ireland and Spain. If compared with the levels of 2006-07, the overwhelming majority of countries have seen how their long-term unemployment rates increased, reaching peak levels in 2012 in many countries. Furthermore, there is no clear trend towards the progressive decrease in the rate, rather to its increase or its maintenance. Here, hence, despite the different structural situations<sup>124</sup> of the different countries, there appear to exist another clear common background situation in all them.

#### 2.6.4. Youth unemployment rate

To finish and thoroughly analyze the unemployment rate beyond what is strictly defined in the definition of secular stagnation, it's worth looking at the youth unemployment rate – which is calculated as the percentage of youth labor force (15 to 24 years old), for its also importance in an economy and as a way to assess which is the situation of those who are beginning to enter into the workforce and hence, will exert a predominant paper in the economy in the future. Job crisis usually have a highly negative effect over the younger workers. This fact has worrying social and economic consequences. Persistently high youth unemployment rates will adversely affect the economy of a country inasmuch as it affects the employment base that must support the country in the future.

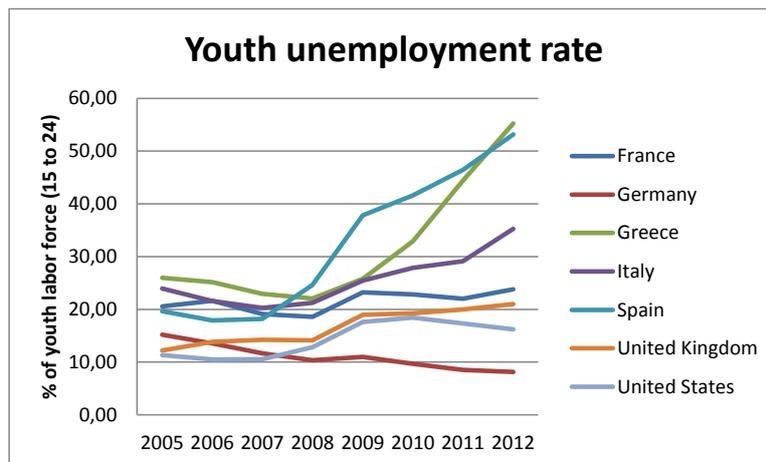
The table below – and the corresponding graph for some relevant countries – shows that, again with the exception of Germany, all countries have seen how their youth unemployment rates rose since the minimums reached in 2007-08, just before the crisis outbreak. The case in South European countries – like Italy, Portugal but especially Greece and Spain – is especially disturbing, where has been a sharp rise in the rate. This fact has already affecting the economy insofar as many young people are leaving their respective countries in order to find jobs abroad. This certainly destabilizes the labor and, ultimately, economic base of a country and its future prospects.

Table 9: Youth unemployment rate (% of youth labor force) [source: own elaboration based on OECD data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Canada	Australia
2005	20,57	15,19	25,98	9,78	23,97	8,65	16,08	19,66	12,22	11,31	12,43	10,65
2006	21,64	13,55	25,17	9,88	21,60	8,00	16,24	17,92	13,83	10,51	11,69	10,04
2007	19,11	11,68	22,94	10,27	20,29	7,70	16,57	18,19	14,24	10,54	11,19	9,36
2008	18,59	10,37	22,08	12,45	21,25	7,24	16,45	24,63	14,12	12,84	11,58	8,83
2009	23,22	10,99	25,78	25,49	25,44	9,08	20,02	37,85	18,97	17,60	15,21	11,50
2010	22,82	9,69	32,90	28,26	27,86	9,22	22,33	41,61	19,26	18,42	14,79	11,53
2011	22,04	8,54	44,40	29,87	29,13	8,02	30,08	46,45	19,97	17,31	14,17	11,34
2012	23,81	8,13	55,26	32,99	35,26	7,95	37,67	53,16	21,02	16,21	14,30	11,72

<sup>124</sup> As happened with the unemployment rate, the institutional and structural differences among countries are important for the long-term unemployment rate: "In comparing rates of long-term unemployment, it is important to bear in mind differences in institutional arrangements between countries. Rates of long-term unemployment will generally be higher in countries where unemployment benefits are relatively generous and are available for long periods of unemployment. In countries where benefits are low and of limited duration, unemployed persons will more quickly lower their wage expectations or consider taking jobs that are in other ways less attractive than those which they formerly held" OECD (2014).

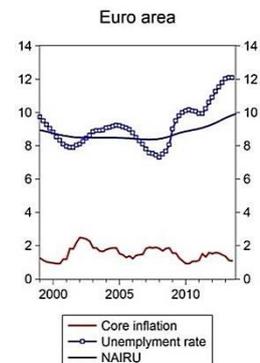
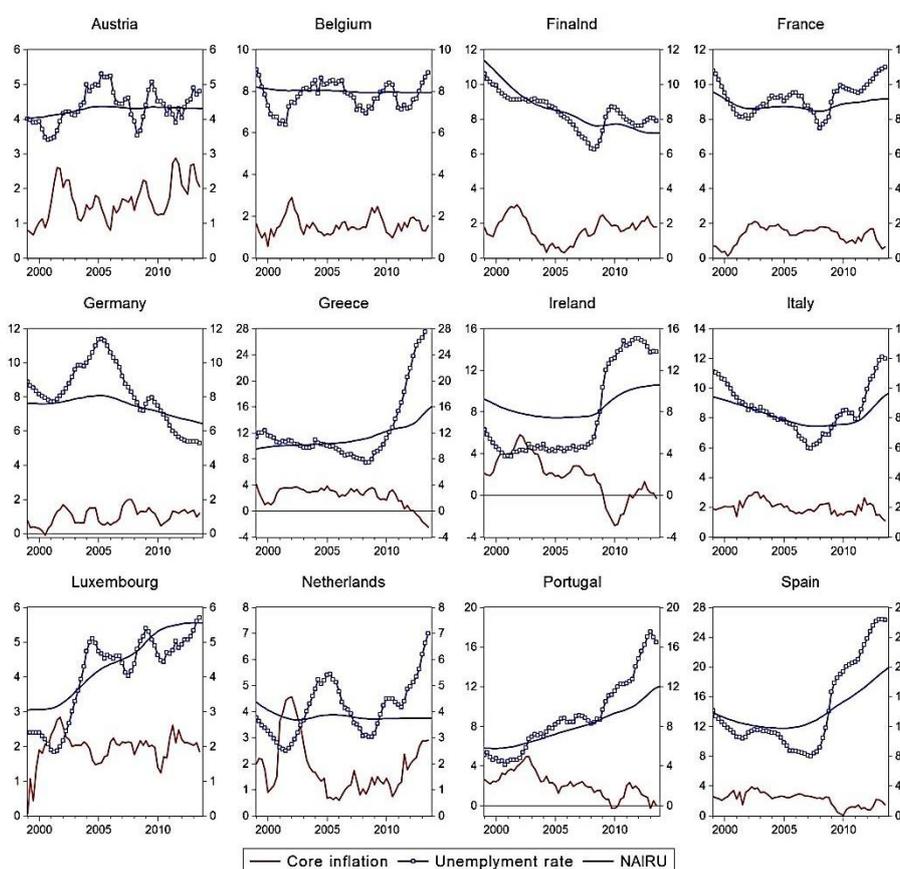
Figure 12: Youth unemployment rate (% of youth labor force) [source: own elaboration based on OECD data]



### 2.6.5. Natural rate of unemployment (NAIRU)

The impact that the crisis may have had over the natural rate of unemployment is also a crucial indicator to demonstrate that exists a hysteresis effect. Here, two things are analyzed: 1) where is the actual unemployment rate in relation with the natural rate of unemployment; and 2) how the natural rate of unemployment has behaved since the 2008 financial crisis (the graph in the upper right-side is for the US).

Figures 13 and 14: Natural rate of unemployment (NAIRU), unemployment rate and core inflation [source: Darvas & Merler (2013)] and Actual and natural Rates of Unemployment (United States) [source: CBO (2012)]



Actual and Natural Rates of Unemployment



Sources: Congressional Budget Office; Bureau of Labor Statistics.  
 Notes: The unemployment rate is a measure of the number of jobless people who are available for and actively seeking work, expressed as a percentage of the labor force. The natural rate is CBO's estimate of the unemployment rate arising from all sources except fluctuations in aggregate demand.  
 Data are quarterly. Historical data are plotted through 2013; projections are plotted through 2024.

The conclusions in this case are very clear and the trends also very similar among countries. There are three main conclusions that can be extracted. First of all, the unemployment rates in all European countries – with the exception of Germany –, in the Euro area and in the US remain well above the natural rate of unemployment after six years since the crisis began. This certainly shows the severity of the crisis and the difficulty to reach the NAIRU even in the economies who have suffered the least the effects of the crisis. Secondly, except in the case of Germany and Finland, the natural rate of unemployment have either risen or maintained. It's interesting to note that this rate have risen sharply in Southern European economies and slightly in the US and France. This also shows the big impact that the crisis and the following weak recovery is having over unemployment trends. This in fact also might be suggesting that Southern European countries might very well have not only a demand-side problem – due to still very high unemployment – but also a supply-side problem – due a rising and high NAIRU –. This is interesting to note because it shows that this stagnation might very well have many different causes, not only demand, but also supply. Finally, there is not a clear tendency towards reducing unemployment, not even in the countries whose unemployment rate have fallen the most in the past years. The trend seems to have stabilized itself in the already higher rates that many countries have. Portugal is the only country which seems to have a clear tendency to reduce unemployment, although from already very high levels.

Although inflation will be discussed in following sections, it's interesting noting here that since the financial crisis the majority of countries have seen low levels of inflation, many also declining ones. The Euro area diagram summarizes pretty well the whole tendency: high unemployment rates well above the natural rate and which don't seem to fall in the following years rather to stabilize themselves; a natural rate of unemployment that has been rising since 2008; and all this accompanied by low and stable inflation rates, usually below Central Bank's 2% target. Here is clear that there is both a problem of demand and supply regarding unemployment.

### **2.7. Developed economies are indeed suffering from secular stagnation**

Based on the definition of secular stagnation built in the previous part and given the analysis that has been made of a representative set of developed economies over the last years (before and after the crisis), it can be concluded that there is sufficient evidence – through the analysis of the most representative economic data that has been done above – to conclude that, in general terms, the developed world – in greater or lesser extent depending on the specific situation of each country – is involved in a situation of secular stagnation.

Despite the improvements that seem to be happening, there is not sufficient evidence to state that the developed world as a whole is consolidating an economic recovery strong and vigorous enough so that in a short period of time these same economies as a whole may exit this impasse and return to a pre-financial crisis situation, in terms of, at least, employment, output growth and inflation. Some of the dangers that the developed world face has not been entirely satisfactorily overcome yet and there are still some important problems that must be addressed. The long period of time that has passed since the outbreak of the financial crisis and the fact that data does not show a strong improvement yet also pushes to conclude that the developed world as a whole may be suffering from secular stagnation. Therefore it is not only about the weak recovery, but also about the slowness of it, and there is also a visible failure of the conventional policy measures applied to get the economy back to pre-crisis levels (at least in terms of Real GDP growth, unemployment and inflation, which are indeed the key indicators used to define the secular stagnation situation). In short, the economy seem that has stabilized recently – though small incidentals may still harm it severely –, but it hasn't recovered nearly enough to escape secular stagnation, as it has been defined.

## **3. Causes' analysis**

The objective of this section is assessing the causes exposed and explained in the previous part (Part II) through the analysis of different figures, diagrams and data. Now that there is enough evidence – extracted from the analysis carried out in the previous section – to conclude that the developed world is in

a state of secular stagnation – as it has been defined in Part II –, the ultimate goal of this section will be to answer this question: which are the most relevant causes that may have caused a situation of secular stagnation? The answer will depend on the analysis performed of the causes previously outlined. It will be argued which causes are selected and why. This does not mean that there cannot be other important causes that in the end have not been taken into account. The analysis of the causes is thus limited to the borders established in Part II and the election ultimately depends on the personal argued criterion derived from the analysis of the different trends showed in each of the indicators studied. Even so, the last two supply-side causes from Part II – those that affected both labor productivity and employment – are not analyzed here due to their own difficulty to be analyzed empirically. These two causes were more theoretical than practical and that's why it has been decided not to be included in this analysis. Besides, they won't be considered especially relevant either. Having said that, other researchers could deepen even more in the causes of such situation using the doors opened here.

For the analysis of the causes the same set of countries than that of the previous sections is used. For some causes other countries or a different set of countries can be used to expand the analysis. The time period chosen for the data usually goes from 2002 until the last year available, except in those indicators where a longer time period is needed – as when comes to analyze population growth –.

## **2.1. Demand-side causes**

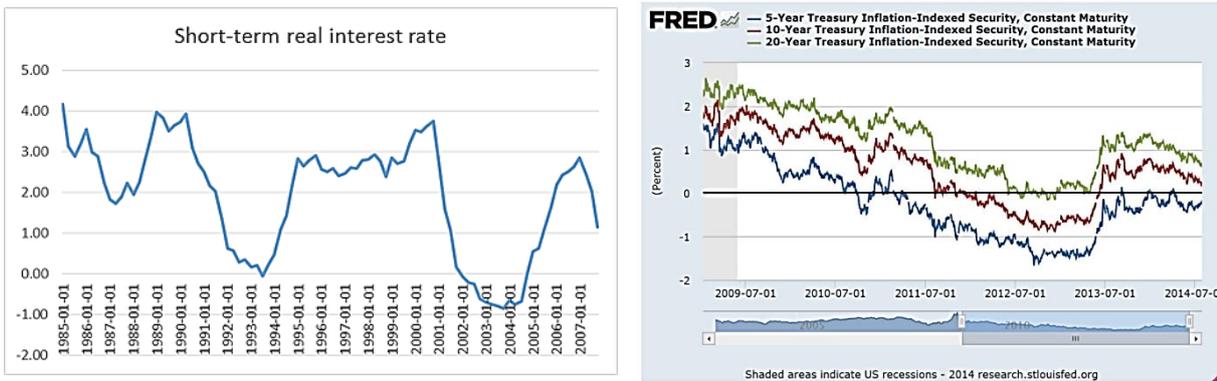
### **2.1.1. Real interest rates and the natural rate of interest**

The main point of concern from a demand-side point of view, as it was exposed by Larry Summers, is that the natural real interest rate might be well below zero and that under current monetary and fiscal circumstance the real interest rate is unable to reach that level.

The real interest rate can be calculated knowing which is the inflation rate of a certain period of time – through the Consumer Price Index (CPI) , for instance – and the nominal interest rate – that which is set by the central one or looking at the yield of US bonds, which are a good approximation –. Using the Fisher Equation ( $\text{Real\_interest} = \text{Nominal\_interest} - (\text{expected}) \text{Inflation}$ ) can be calculated this rate. The Treasury Inflation-protected securities (or TIPS) are the inflation-indexed bonds issued by the U.S. Treasury. These bonds are also a good approximation of either short-term or long-term real interest rates – because they are offered in 5-year, 10-year and 30-year maturities –insofar as they are adjusted to the Consumer Price Index (CPI), the commonly used measure of inflation. The analysis of real interest rates focuses mainly in the US situation. For various reasons, the US influences enormously on the behavior of the real interests of other monetary areas that, as it is shown in a figure below, commonly follow a similar tendency with regard to US real interest rates.

The graph on the left shows what has been the short-term real interest rate – for the US – throughout the years of the Great Moderation; i.e. since Reagan took power until the 2008 Financial Crisis, a period of astonishing low and stable inflation, low and stable unemployment and almost constant growth. This short-term real interest rate is calculated as the difference between the 3-month T-bill rate and one-year inflation expectations in the Survey of Professional Forecasters:

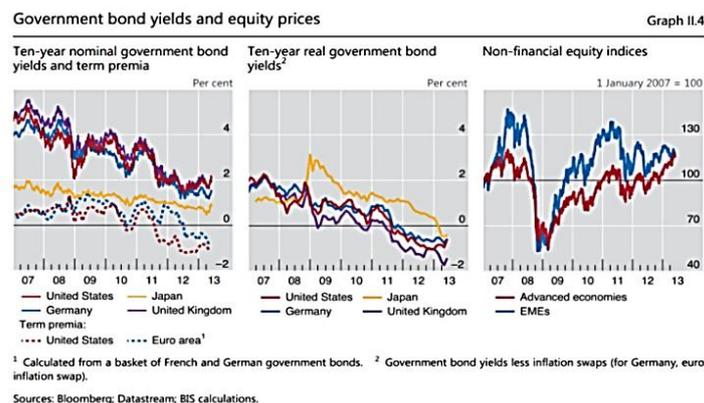
Figures 15 and 16: Short-term real interest rate [source: Krugman (2013c)] and Real interest rates [source: own elaboration based on FRED data]



What can be seen is that the average real rate during the Great Moderation years has been 1.9 percent. Krugman is right in pointing out that the tendency already looking this graph that accounts until 2007 is that the real interest rate will fall to negative territory. The main implication of this fact is that monetary policy could lose effectiveness in boosting an economy whose real interest rate is well below zero. If inflation stays relatively low, e.g. 2 percent, this would certainly mean – Krugman thinks – an economy that often, perhaps usually, finds itself in a liquidity trap. And this is certainly a problem that Summers has already pointed out in his speech: that under current monetary and fiscal circumstance this real interest rate level is difficult to reach, thus depressing or stagnating the economy. In the graph on the right there appears a more recent estimation of the real interest rate as measured by the n-year treasury inflation-indexed security (constant maturity) for n = 5, 10, 20 – very used and exact measures of calculating the real interest rate –. In 2011 the 10-year security rate was already on the verge of entering in negative territory, while the 5-year rate was already negative. In a nutshell, the 20 year rate is below 1%, the 10 year rate is basically zero, and the 5 year rate is negative. Therefore, it seem to be clear the concerns of Summers that real interest rates might well be below zero, with the consequences that this has for the economy, an economy where nominal interest rates are already around zero and inflation around 1 or 2%, numbers that don't let to achieve a minus 2 or 3% real interest rate.

Now let's take a wider look to other countries and other assets and bonds. The first graph in the next figure show that long-term nominal interest rates in the case of Europe and the US are also below zero, and using the Fisher Equation this value has sense for the kind of expected inflation – around 1% – in these countries and a negative real interest rate (of about 2 or 3%). Indeed, the second graph certainly shows how real interest rates – calculated from ten-year real government bond yields – are above zero in all world major developed economies – the US, Germany, Japan and the UK –, being the US and the UK the two countries with a more depressed real interest rate. There is also a steady decrease in these rates since the onset of the financial crisis.

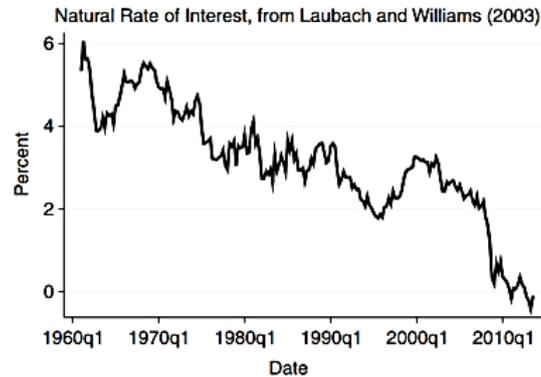
Figure 17: Government bond-yields and equity prices [source: BIS (2014)]



<sup>1</sup> Calculated from a basket of French and German government bonds. <sup>2</sup> Government bond yields less inflation swaps (for Germany, euro inflation swap).  
Sources: Bloomberg; Datastream; BIS calculations.

Some studies have estimated the natural rate of interest and what they show is that it has had a clear downwards trend since the late 60's already. This trend was less pronounced during the eighties, but it again began to fall during the first 90's. There was a small recovery of the natural rate in the late 90's and then it fall sharply, to the historic minimums where it has stayed in the last years.

Figure 18: Natural rate of interest [source: Laubach & Williams (2001)]



The conclusions in that case are clear: real interest rates have maintained a clear downward trend in recent years, especially after the financial crisis; and, following the estimates, they might certainly be below zero. The natural rate of interest might as well be well below zero<sup>125</sup>. Under these circumstances it is already difficult for economies where central bank's nominal rates are already in Zero Lower Bound to efficiently stimulate the economy with conventional monetary policies. This situation might certainly be causing problems in the economy, especially inasmuch as it is unable to balance savings and investment.

### 2.1.2. Wealth and income inequality

Income<sup>126</sup> inequality is a rising problem in the majority of developed economies. This problem has recently gained enormous importance on economic and policy discussions. Income inequality is important because it is one of the most visible manifestations of differences in living standards within each country. High income inequality usually entails a waste of human resources due to the fact that a big part of the population is out of work or trapped in low-paid and low-skilled jobs. This has consequences over growth insofar as a poorer population is a population that spends and consumes less and consumption is a big share of annual output. People with very high incomes usually have a higher tendency towards saving than the majority of middle-income people. This also could depress interest rates and depress investment.

The problem of income inequality has certainly grown since the 80's. The diagram below shows how the GINI coefficient<sup>127</sup> has evolved since the 80's. In the graph appear how this index was in the 80's, in the 90's and nowadays. The most striking fact is that from the mid-1980s to around 2010s, inequality rose

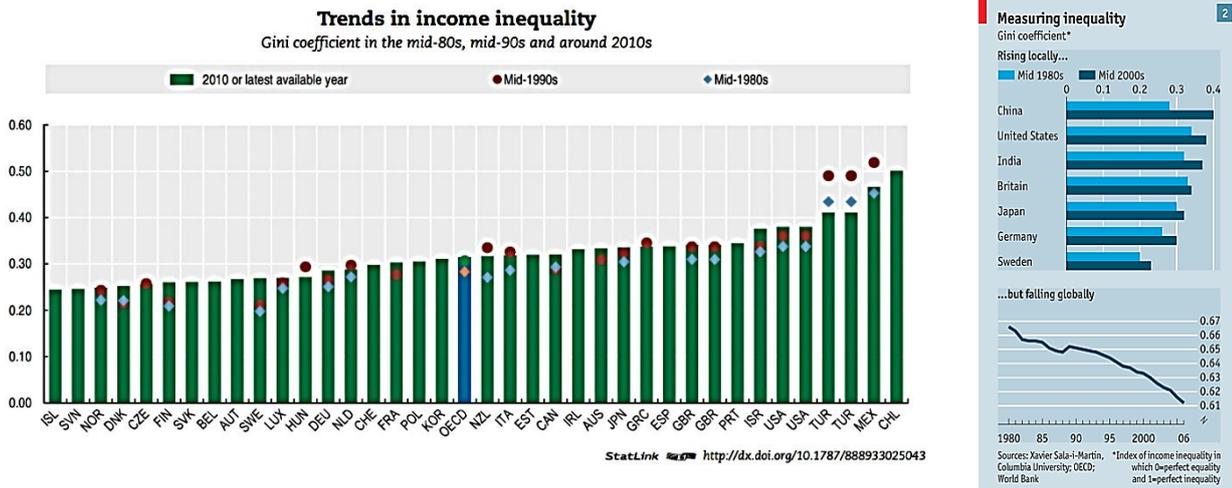
<sup>125</sup> "What has the consequence been? Laubach and Williams (2003) from the Federal Reserve established a methodology for estimating the natural rate of interest. Essentially, they looked at the size of the output gap, and they looked at where the real interest rate was, and they calculated the real interest rate that went with no output gap over time. Their methodology has been extended to this point, and it demonstrated a very substantial and continuing decline in the real rate of interest. One looks at a graph of the 10-year TIP and sees the same picture. Mervyn King, the former governor of the Bank of England, has recently constructed a time series on the long-term real interest rate on a global basis, which shows a similar broad pattern of continuing decline" (Summers, 2014).

<sup>126</sup> The OECD understands income as: "household disposable income in a particular year. It consists of earnings, self-employment and capital income and public cash transfers; income taxes and social security contributions paid by households are deducted. The income of the household is attributed to each of its members, with an adjustment to reflect differences in needs for households of different sizes" OECD (2014).

<sup>127</sup> This is the most widely indicator used for income inequality. The OECD defines it as follows: "Income inequality among individuals is measured here by six indicators. The Gini coefficient is based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive, and it ranges between 0 in the case of perfect equality and 1 in the case of perfect inequality. S90/S10 is the ratio of the average income of the 10% richest to the 10% poorest; S80/ S20 of the average income of the 20% richest to the 20% poorest. P90/P10 is the ratio of the upper bound value of the ninth decile (i.e. the 10% of people with highest income) to that of the first decile; P90/P50 of the upper bound value of the ninth decile to the median income; and P50/P10 of median income to the upper bound value of the first decile" OECD (2014).

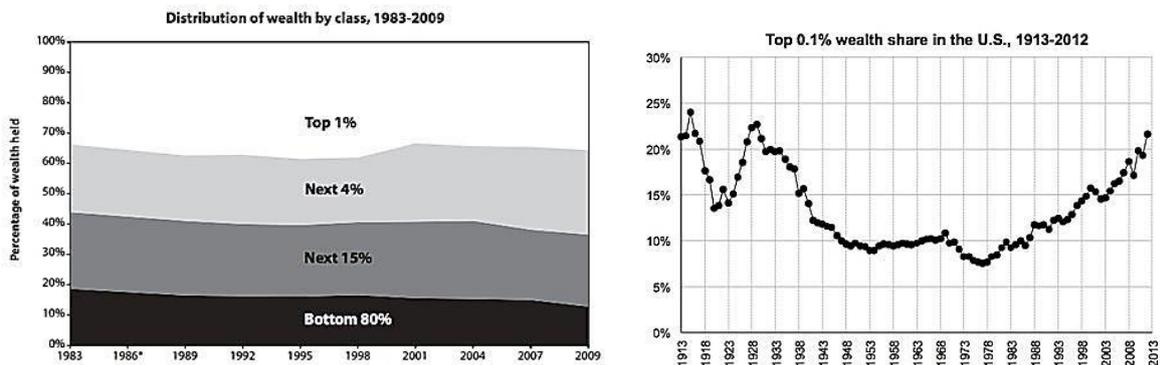
in 15 out of 16 countries of which long-term data was available<sup>128</sup>. The increase was strongest in two Scandinavian countries like Finland and Sweden followed also in Israel. The truth is that the rise in inequality was higher in the decade going from the 80's to the 90's than in the following years, although there has been a upturn after the 2008 crisis. It is also interesting noting that although inequality is an increasing factor of concern in many developed countries and that it has risen in almost all of them, income inequality has been declining globally in the last decades (diagram on the right).

Figures 19 and 20: Gini coefficient in the mid-80s, mid-90s and around 2010s [source: OECD (2014)] and Gini coefficient [source: Various Authors (2011)]



Not only income inequality has risen, but also wealth inequality<sup>129</sup>. Economists Thomas Piketty of the Paris School of Economics and Gabriel Zucman of the University of California, Berkeley, show that at the very top, wealth is still very unequally distributed, as unevenly as in the early 20th century (for the US case). There are great differences among the 1%, the 0,1% and the 0,01%, being the later far wealthier than the two previous groups (as shows the third diagram below) and the three far wealthier than the majority (as shows the graph on the right)<sup>130</sup>.

Figures 21 and 22: Distribution of wealth by class, 1983-2009 [source: Piketty & Zucman (2014)] and Top 0.1% wealth share in the US, 1913-2012 [source: Piketty & Zucman (2014)]

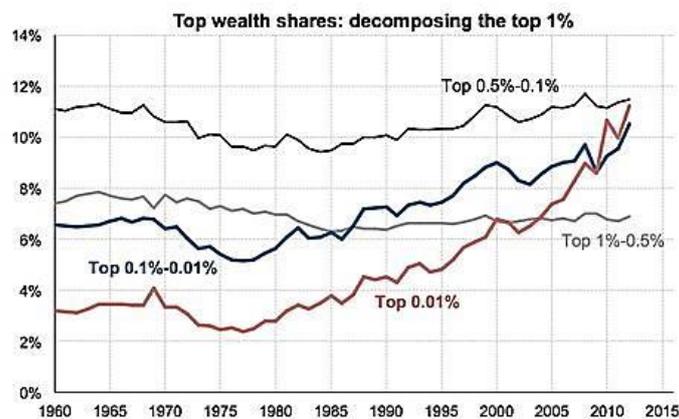


<sup>128</sup> More in "Wealth inequality in the United States" (2010).

<sup>129</sup> Annie Lowrey explains in the New York Times what is the difference between income and wealth inequality: "When economists talk about income, they talk about the money a household or a person earns in a given year. That's the salary you earned, the rent from a tenant above your garage and the bit of money you made by selling some stocks. Your wealth is the value of your assets – your retirement accounts, your home, the unsold stocks – minus your debts, like your credit-card bill and your mortgage" (Lowrey, 2014). Besides, wealth combined with income comprises the family's total opportunity "to secure a desired stature and standard of living, or pass their class status along to one's children" (Grusky, 2008, 637-638).

<sup>130</sup> Atif Mian and Amir Sufi (2014c) also discuss the thesis of Piketty regarding wealth inequality in the US and provide interesting insights and figures.

Figure 23: Top wealth shares, decomposing the top 1% [source: Piketty &amp; Zucman (2014)]



So in this case, it is clear that there has also been a rise in both income and wealth inequality in developed countries. It's interesting that this increase has not been directly a consequence of the crisis inasmuch as the tendency toward higher inequality was already on track since at least the 80's. What the crisis has certainly done is magnifying a problem that already existed by the crisis that somewhat remained hidden due to a huge increase in house properties and household debt that in some way offset this increasing inequality. The most disturbing aspect of income inequality is not only that it poses threat over the economy and growth, but also over the same stability of societies in the form as unequal societies tend to be less stable, less democratic and less pacific (Benabou, 2000). The 30's and the Great Depression are a good example of the kind of pressure that inequality puts over governments.

### 2.1.3. Tight monetary policy

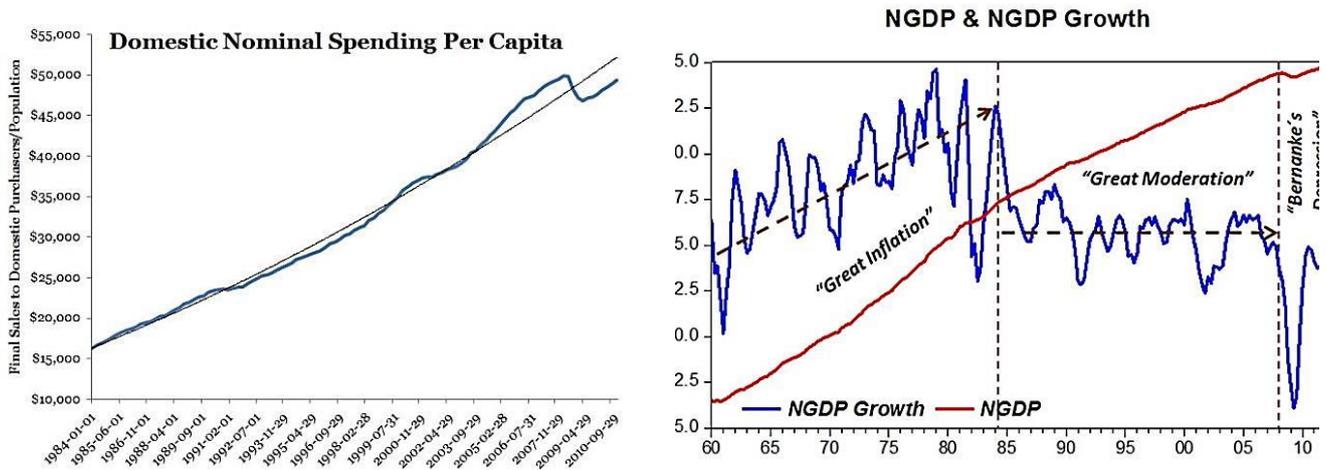
Monetary policy has been, without any doubt for some economists, the most important cause behind the Great Recession that followed the Financial Crisis and also a major cause behind the Great Stagnation that in turn followed the Great Recession.

These economists argue that monetary policy has been tighter than needed and that the FED responded too late to the first effects of the crisis. This policy delay allowed a great harm over the economy. To know what is the stance of monetary policy (i.e., whether it is "easy" or "tight") is often quote a comment made by Ben Bernanke who, in 2003, said that the "only" way to determine the stance of monetary policy is by looking at NGDP growth and inflation<sup>131</sup>. Bernanke even said that the money supply and interest rates are usually misleading. From this perspective, these economists argue that since the beginning of the crisis the US has had the tightest money since President Herbert Hoover at the beginning of the XXth century. This situation is also equivalent in all major economies, especially in the Euro area<sup>132</sup>, where the BCE lowered rates later than the FED and, hence, let NGDP to fall further. In fact, in the US NGDP growth has averaged only  $\frac{1.9\%}{year}$  and inflation only 1.1%. In the view of these economists and many others, this is mainly a nominal problem that the central bank is compelled to solve. Its slowness or inefficiency has large consequences for the economy.

<sup>131</sup> See note 59 in Part II

<sup>132</sup> Where the fall in NGDP in the Euro area has been bigger than even in the US. See Sumner (2012).

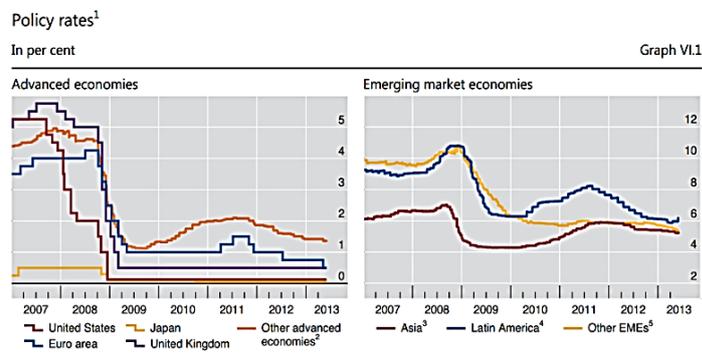
Figures 24 and 25: Domestic nominal Spending per capita [source: Beckworth (2011)] and Nominal GDP and Nominal GDP growth [source: Nunes (2012)]



In the following graph there can be see how NGDP fall behind potential after the crisis. These economists argue that this is a clear sign of a bad management carried by the FED. That inflation has averaged so poorly and below the central bank’s 2% target is another central bank’s fault.

Although the FED was the first major central bank that lowered interest rates in order to tackle the effects of the financial crisis while trying to boost the economy and avoid a new Great Depression, many economists claim that they also acted late due to fear of inflation at the end of 2008 – which then was showing signs of being pushing up, but for merely conjunctural reasons – and that this slowness had a big cost for the American economy<sup>133</sup>. Other banks, especially the ECB, acted even later and this had still worse consequences for their economies. In the ECB case it even raised rates in 2011, which directly pushed the economy into a new recession from which the European economy has not still recuperated. In the following graph there can be seen the central bank’s policy rates which is the principal tool that central banks have to steer monetary policy. When they lower them they’re trying to make money cheaper and hence boost the nominal economy through a rise in prices. As can be seen, the US – with the exception of Japan that had already low rates – was the first to act and the ECB the slowest to act among major economies. As can be seen, the dynamic in Emerging Market Economies is completely different. Although they too lowered interest rates, the rates stayed at higher levels and they even have raised them. This shows how the severity of this crisis has especially hit developed economies.

Figures 26: Policy interest rates (nominal rates) [source: BIS (2014)]



<sup>1</sup> Policy rate or closest alternative; for target ranges, the midpoint of the range. Aggregates are weighted averages based on 2005 GDP and PPP exchange rates. <sup>2</sup> Australia, Canada, Denmark, New Zealand, Norway, Sweden and Switzerland. <sup>3</sup> China, Chinese Taipei, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. <sup>4</sup> Argentina, Brazil, Chile, Colombia, Mexico and Peru. <sup>5</sup> Other emerging market economies (EMEs): the Czech Republic, Hungary, Poland, Russia, Saudi Arabia, South Africa and Turkey. Sources: Bloomberg; Datastream; national data.

<sup>133</sup> (O’Brien, 2014) discusses in depth this inflation-phobia of many FOMC (Federal Open Market Committee) members to rising inflation in 2008 – due mainly to rising oil prices – and why they took monetary measures that were softer than the expected and needed for the economy in that time.

The conclusions for this section seem to be quite clear too. It appears quite visible that the FED, although has done more the majority of other central banks to boost growth, acted later and let NGDP and inflation at the beginning of the crisis to fall too much, in great part due to a fear of inflation and maybe due to an ignorance of the real situation of the economy and the severity of the crisis. This can be also applied to the ECB, who not only acted later and milder than FED, but it also raised rates in 2011 – when they thought the economy was recovering and hence higher rates were needed – which pushed the european economy back into another recession. Therefore, it seem quite clear that central banks should do more – and can do more – to boost the economy (OECD, 2014, Box 2).

## 2.2. Supply-side causes

### 2.2.1. Affecting employment-to-population ratio:

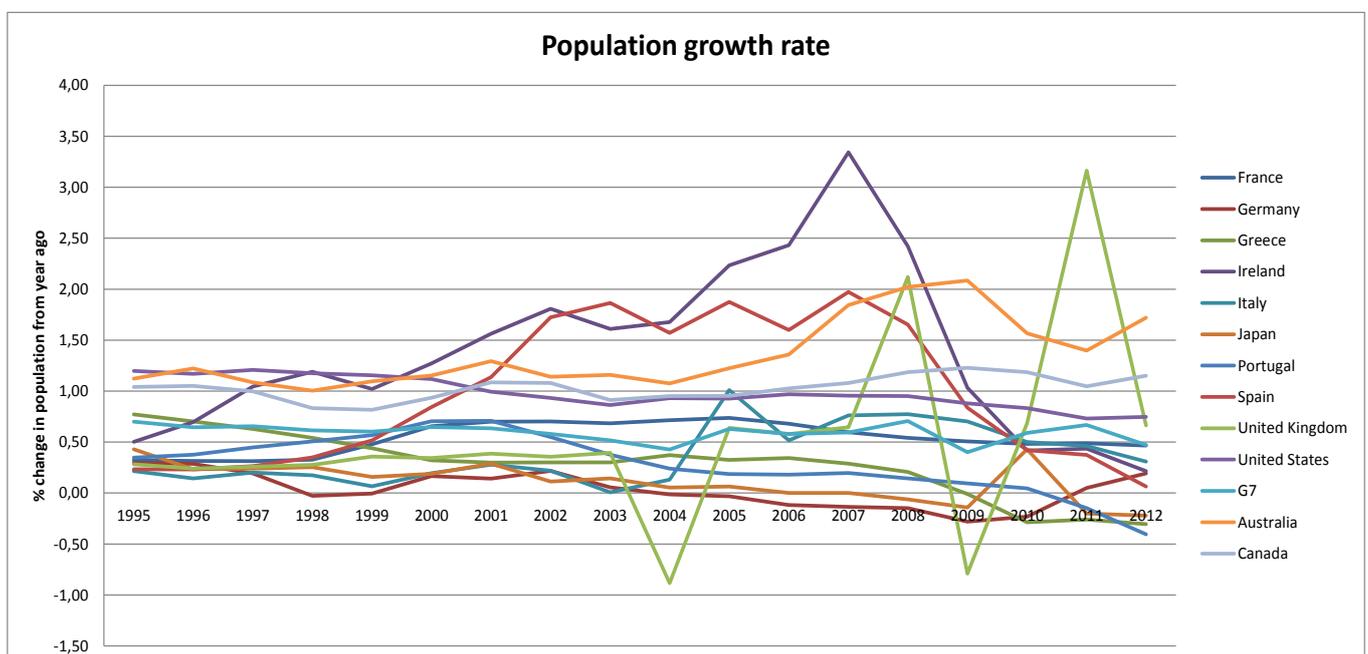
#### 2.2.1.1. Declining population growth and aging population

First of all, let's analyze the population growth rates of the same set of representative countries from the developed world.

Table 10: Population growth rates (% change from previous year) [source: own elaboration based on OECD data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	G7	Australia	Canada
1995	0,32	0,29	0,77	0,50	0,21	0,43	0,35	0,23	0,28	1,20	0,70	1,12	1,04
1996	0,31	0,29	0,70	0,70	0,14	0,23	0,38	0,23	0,24	1,17	0,64	1,22	1,05
1997	0,31	0,19	0,63	1,05	0,20	0,24	0,45	0,26	0,26	1,21	0,66	1,09	1,00
1998	0,33	-0,03	0,54	1,19	0,17	0,25	0,51	0,35	0,28	1,18	0,61	1,00	0,83
1999	0,48	-0,01	0,44	1,02	0,07	0,16	0,57	0,52	0,36	1,15	0,60	1,10	0,82
2000	0,66	0,17	0,32	1,27	0,19	0,19	0,71	0,84	0,34	1,12	0,65	1,15	0,94
2001	0,70	0,14	0,30	1,56	0,28	0,29	0,71	1,14	0,39	0,99	0,63	1,29	1,09
2002	0,70	0,22	0,30	1,81	0,22	0,11	0,55	1,72	0,36	0,93	0,58	1,14	1,08
2003	0,68	0,06	0,30	1,61	0,01	0,14	0,38	1,87	0,39	0,86	0,52	1,16	0,91
2004	0,71	-0,01	0,37	1,68	0,13	0,05	0,24	1,57	-0,88	0,93	0,43	1,07	0,95
2005	0,74	-0,03	0,33	2,23	1,01	0,06	0,19	1,87	0,64	0,93	0,63	1,22	0,95
2006	0,68	-0,12	0,34	2,43	0,52	0,00	0,18	1,60	0,58	0,97	0,58	1,36	1,03
2007	0,60	-0,14	0,29	3,34	0,76	0,00	0,20	1,97	0,65	0,96	0,60	1,84	1,08
2008	0,54	-0,15	0,21	2,42	0,77	-0,06	0,14	1,65	2,12	0,95	0,71	2,02	1,18
2009	0,51	-0,28	-0,01	1,03	0,70	-0,14	0,10	0,84	-0,79	0,88	0,40	2,08	1,23
2010	0,48	-0,23	-0,29	0,42	0,50	0,43	0,05	0,42	0,68	0,83	0,59	1,57	1,18
2011	0,49	0,05	-0,26	0,43	0,46	-0,20	-0,15	0,37	3,16	0,73	0,67	1,40	1,05
2012	0,47	0,19	-0,31	0,21	0,31	-0,22	-0,40	0,06	0,66	0,75	0,47	1,72	1,15

Figure 27: Population growth rates (% change from previous year) [source: own elaboration based on OECD data]

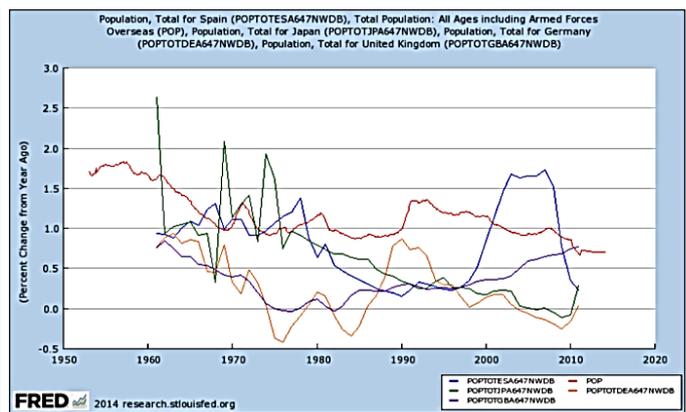
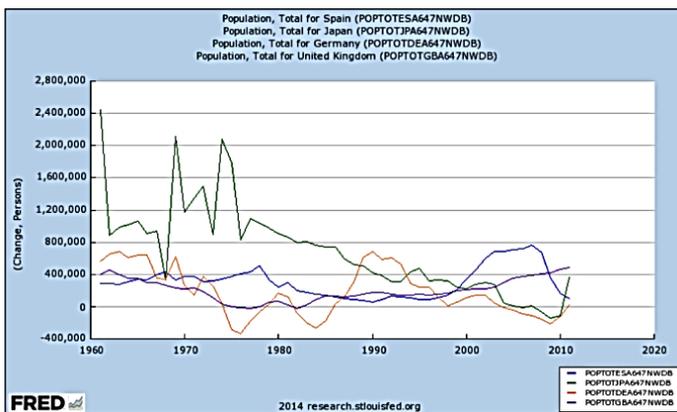


By and large, this graph shows three general trends: (1) a general stagnant trend in population growth rates in the majority of developed countries since the mid-90 (with the exception of Ireland, Spain, Australia and the UK that thanks to their booming economies just before the crisis received a high influx of immigrants). (2) The overall drop in population growth rates in many countries since the beginning of the crisis (with the exceptions of Germany, Canada and Australia coincidentally have been three of the least affected countries by the crisis and, thus, they have received a large influx of immigration from other nations in a weaker economic position). (3) Since the mid-90, population growth rates have on average been around 0.5% for the developed world, which is a growth rate slightly positive, that shows the weak population situation of many countries. These general trends, regardless of the specific characteristics of each country, show a stagnant population in the developed. The problem has been exacerbated by the crisis and there is no visible evidence to think that this tendency might overturn in the future.

The following two graphs show a longer time line for population for some developed countries and, hence, help to make more visible the problem, also showing that there exists a downward trend since the late 70's. The first graph on the left shows the change in persons over year in the total population of Spain, Japan, Germany and the UK. As can clearly be seen in all three countries there has been an overall declining growth in population over the years since the late seventies.

In the second graph, the one on the right, is plotted the percentage change from year ago in the total population of Spain, Japan, Germany, the UK and the US. This graph complements the last one and also shows a declining percentage growth from the year ago since the late 70's in almost all countries. The UK had a falling population since the late 60's but it has maintained it somewhat stable since then with a rise in the last decades, due to inflows of foreign population mostly. The US – red line – has been seeing a fall in population growth also since the 90's, with a stagnant population since the 80's. Spain saw a big rise in population in the first years of the XXI<sup>st</sup> century due to immigration, a tendency that has completely reversed recently when the crisis came. Again, the Germany current rise in population could also be due to a rise in immigration, especially from Southern European countries with worse economic outlook.

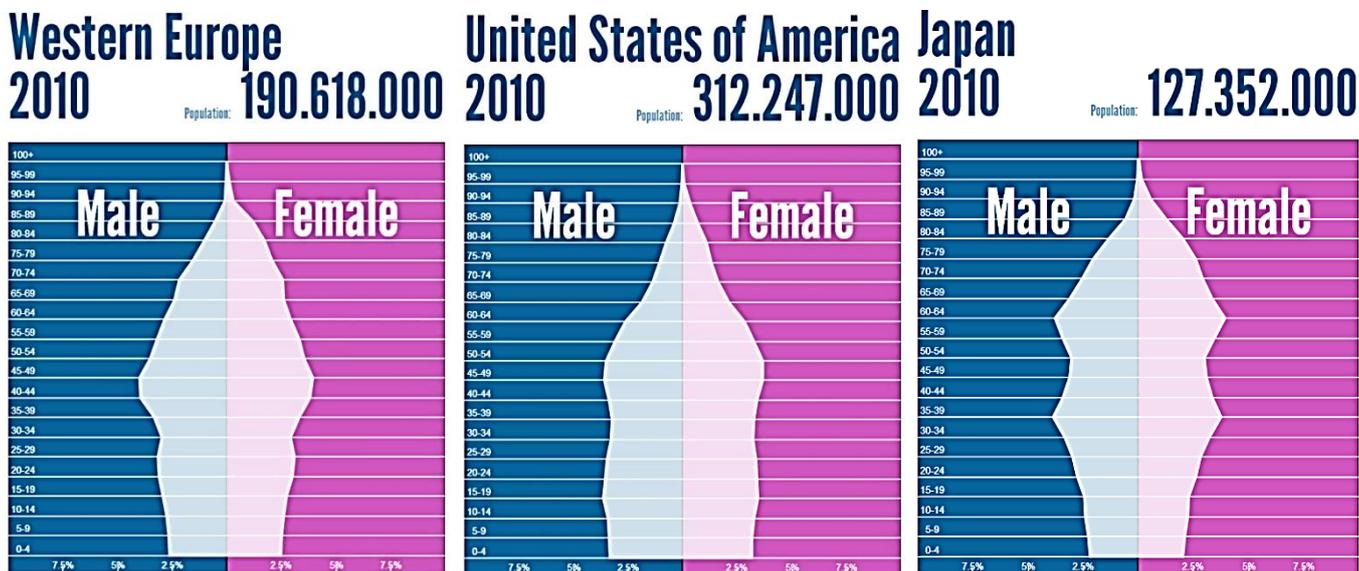
Figures 28 and 29: Total Population (change in persons) and Population growth rates (% change from previous year) [source: own elaboration based on FRED data]



Regarding aging population, the following population pyramids show for the majority of developed countries the following features: (1) A narrow base, due to a drop in the number of births. (2) A wide middle of the pyramid, that shows the baby-boom of the 40's, 50's and in some way 60's (depending on the country). (3) A narrow top, although will tend to increase in the future precisely due to the aging of what now is the middle of the pyramid. Therefore, these pyramids show not only an aging population nowadays, but the trend for the future seem quite clear to entail a decrease in the number of

births and an increase in the top of the pyramid. In fact, Japan’s pyramid already shows what could very well be the future for the majority of developed countries.

Figures 30, 31 and 32: Population pyramids of Western Europe, USA and Japan [source: De Wulf (2014)]



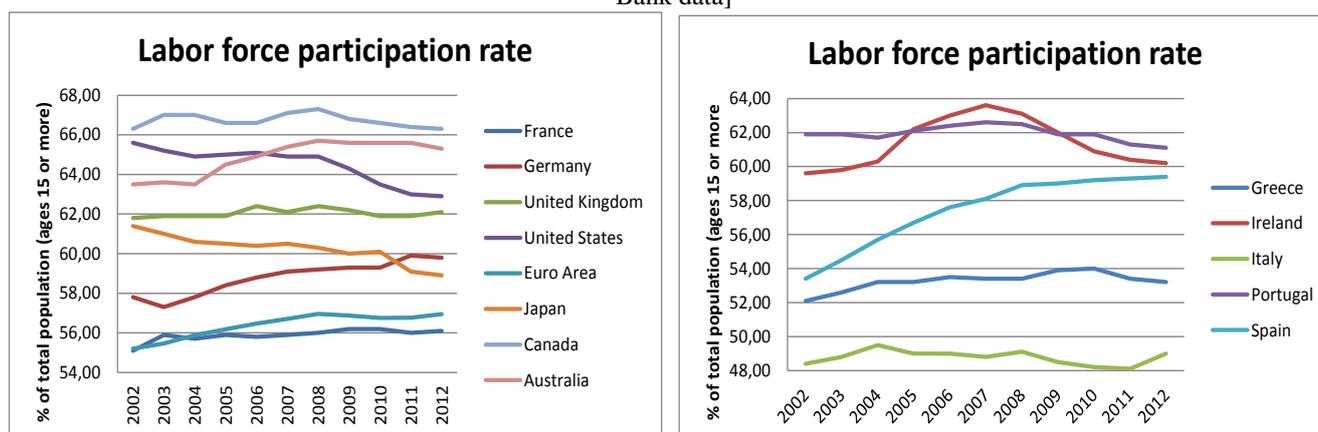
### 2.2.1.2. Declining labor force growth

The labor force participation rate is the proportion of the population aged 15 and older that is economically active: all people who supply labor for the production of goods and services during a specified period. In other words, the labor force is the actual number of people available for work. The following table shows the labor force participation rate as the percentage of total population aged 15 or more for the representative set of developed countries. The following two graphs split that data for to groups: the first one shows the major economies and the second one shows the group of European countries that have been more heavily hit by the crisis (i.e., South-European countries and Ireland).

Table 11: Labor force participation rate (% of total population) [source: own elaboration based on World Bank data]

Time	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Euro Area	Canada	Australia
2002	55,10	57,80	52,10	59,60	48,40	61,40	61,90	53,40	61,80	65,60	55,21	66,30	63,50
2003	55,90	57,30	52,60	59,80	48,80	61,00	61,90	54,50	61,90	65,20	55,47	67,00	63,60
2004	55,70	57,80	53,20	60,30	49,50	60,60	61,70	55,70	61,90	64,90	55,88	67,00	63,50
2005	55,90	58,40	53,20	62,20	49,00	60,50	62,10	56,70	61,90	65,00	56,19	66,60	64,50
2006	55,80	58,80	53,50	63,00	49,00	60,40	62,40	57,60	62,40	65,10	56,47	66,60	64,90
2007	55,90	59,10	53,40	63,60	48,80	60,50	62,60	58,10	62,10	64,90	56,71	67,10	65,40
2008	56,00	59,20	53,40	63,10	49,10	60,30	62,50	58,90	62,40	64,90	56,96	67,30	65,70
2009	56,20	59,30	53,90	62,00	48,50	60,00	61,90	59,00	62,20	64,30	56,88	66,80	65,60
2010	56,20	59,30	54,00	60,90	48,20	60,10	61,90	59,20	61,90	63,50	56,75	66,60	65,60
2011	56,00	59,90	53,40	60,40	48,10	59,10	61,30	59,30	61,90	63,00	56,77	66,40	65,60
2012	56,10	59,80	53,20	60,20	49,00	58,90	61,10	59,40	62,10	62,90	56,95	66,30	65,30

Figure 33: Labor force participation rate (% of total population) [source: own elaboration based on World Bank data]



The graphs show that since the beginning of the 21<sup>st</sup> century there is, by and large, either a constant tendency or a slight decrease in the labor force participation rate (with the clear exception of Spain that witnessed a surge in its rate in the years previous to the crisis, mainly due to an important inflow of immigrants. Germany and Australia also witnessed similar trends for similar reasons). Since the beginning of the crisis, the downward trend is amplified in some countries like Japan, Portugal, Ireland, Greece, Italy – albeit with a small rebound lately –, but especially in the US, where this trend can be observed very clearly. Therefore, there is really a downward trend in the labor force participation growth in the developed world. This tendency existed even before the crisis, but the crisis has served, among other things, to amplify it. In short, the number of people available to work in the developed world is decreasing, a very important shift occurring in the developed world<sup>134</sup>. Yet, it seems that the crisis has amplified the already existent negative trend rather than this stagnant trend has caused the crisis.

### 2.2.2. Affecting labor productivity

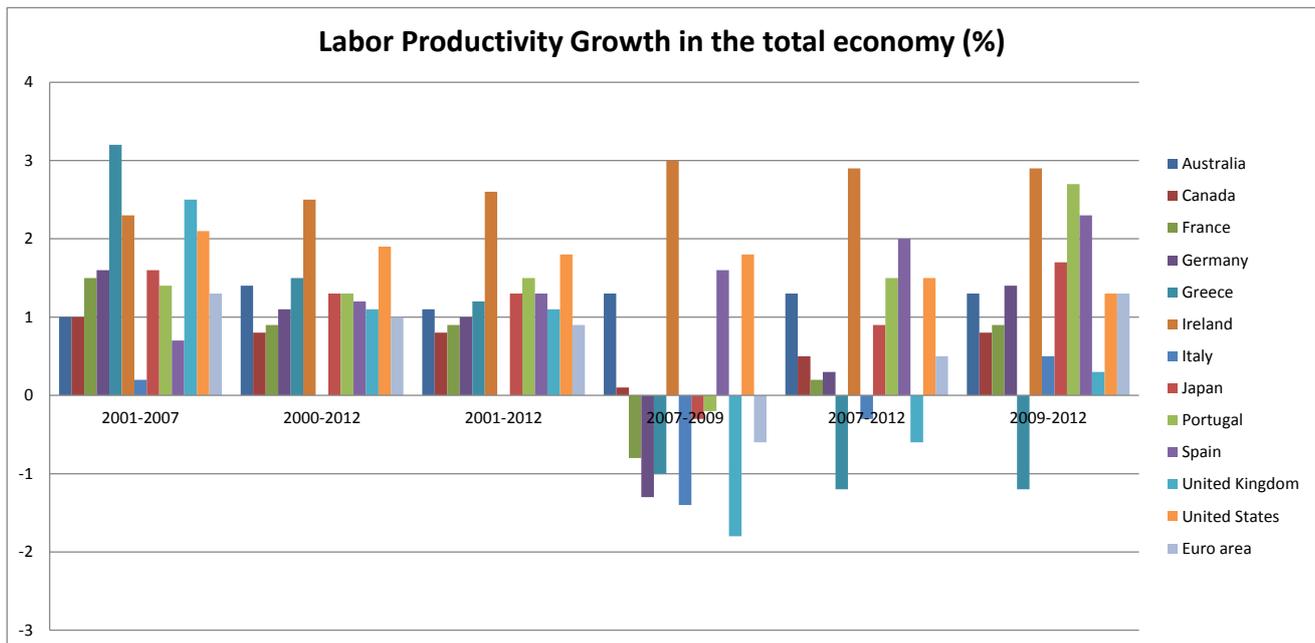
Labor productivity can be directly analyzed through the OECD's "Real GDP per hour worked, annual compounded growth rate". It's worth remembering that labor productivity can either be defined as GDP per employed person (usually referred as "Workforce productivity") or as GDP per hour worked – as in this case –. Note that the following dataset is discontinued, and it shows the % change for a set of years. This indicator is difficult to analyze because it is influenced by many factors and in times of crisis – like the one that is being studied – labor productivity can even rise if, for instance, unemployment increases more than GDP falls (this is precisely the case of Spain, where the unemployment rate has risen much more than what GDP has fallen. Therefore, labor productivity has risen insofar as somewhat less of GDP is done by a much more reduced number of workers). Precisely for this reason it is so difficult to draw definitive conclusions from this data.

Table 12: Labor productivity growth in the total economy (%) [source: own elaboration based on OECD data]

Time	Australia	Canada	France	Germany	Greece	Ireland	Italy	Japan	Portugal	Spain	United Kingdom	United States	Euro area
2001-2007	1	1	1,5	1,6	3,2	2,3	0,2	1,6	1,4	0,7	2,5	2,1	1,3
2000-2012	1,4	0,8	0,9	1,1	1,5	2,5	0	1,3	1,3	1,2	1,1	1,9	1
2001-2012	1,1	0,8	0,9	1	1,2	2,6	0	1,3	1,5	1,3	1,1	1,8	0,9
2007-2009	1,3	0,1	-0,8	-1,3	-1	3	-1,4	-0,3	-0,2	1,6	-1,8	1,8	-0,6
2007-2012	1,3	0,5	0,2	0,3	-1,2	2,9	-0,3	0,9	1,5	2	-0,6	1,5	0,5
2009-2012	1,3	0,8	0,9	1,4	-1,2	2,9	0,5	1,7	2,7	2,3	0,3	1,3	1,3

<sup>134</sup> It is interesting to note again the influence that a deep and prolonged crisis can also exert over the labor participation rate through the hysteresis effect. "Severe recessions appear to have a significant and persistent impact on participation, while moderate downturns do not. The aggregate participation rate effect of severe downturns peaks on average at about 1½ to 2½ percentage points five to eight years after the cyclical peak, and is still significant after almost a decade. Youths and older workers account for the bulk of this effect. Early retirement incentives embedded in old-age pension schemes and other social transfer programmes are found to amplify the responsiveness of older workers' participation to economic conditions" (Duval & Eris & Furceri, 2010).

Figure 34: Labor productivity growth in the total economy (%) [source: own elaboration based on OECD data]



From the different periods of time, different conclusions can be extracted. The period 2001-07 shows, by and large, the highest growth rates for almost all countries (with the exceptions of Spain, Australia and Ireland, although by a slight margin). This data makes sense inasmuch as the decade previous to the crisis was in general a booming decade in the majority of developed countries – growth fuelled by bubbles in a majority of them too –. This means that GDP growth was high and unemployment low – but not as low as one would have expected from bubbly economies – so that labor productivity was high (this fact appears clearly in the Greek case, which during that period had the highest growth in labor productivity). On the contrary, the period 2007-09 shows the lowest labor productivity growth rates for almost all nations. That is mostly because the first years of the crisis caused a big drop in GDP while the unemployment rate did not rise so fast at the same time that GDP was falling sharply (the big increase in unemployment came a bit later). Therefore, a lot less of GDP had to be produced by a slightly smaller number of workers, what sank labor productivity. The period 2009-12 shows that labor productivity again rises due to higher unemployment rates in many countries, and with GDP staying at roughly the same low levels already reached in 2007-09. Spain and Portugal, for instance, are two countries that during the period 2007-09 had negative growth rates while in 2009-12 had positive ones, despite the fact that their economies were far from having recovered.

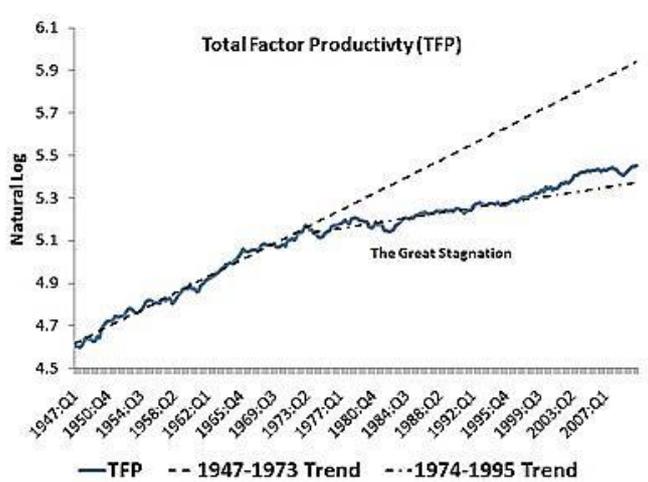
For these reasons, the conclusions to be drawn are ambiguous. What seems clear is that weak labor productivity growth does not seem to have caused the crisis, rather the crisis firstly depressed these rates and then, due to the increase in the unemployment rate, labor productivity recovered. Furthermore, labor productivity does not help to currently show the exact situation of an economy. Ireland, Spain and Portugal, for instance, are countries that in the period 2009-12 had very high labor productivity growth rates although these economies were heavily affected by the crisis and have not yet recovered.

### 2.2.2.1. Decline in innovation and technological progress

This was another key feature in Alvin Hansen's definition of his secular stagnation thesis. It's difficult to analyze the situation of technology and innovation within an economy and it's even more difficult to measure it. In this case, the analysis of technology and innovation is going to be based in variable called total factor productivity. The first one is total factor productivity which is the part of production that can't be explained in terms of inputs of capital, labor, and other known factors of

production. This variable is often used as a synonym for technology – although TFP can include other things as well sometimes – and uses to assess how it is moving over time.

Figure 35: Total Factor Productivity (Natural Log) [source: Smith (2011)]



From the graph above it seems clear that there is stagnation in technological progress beginning around 1973, with technological progress rising far behind the potential that existed before the seventies. This could explain why the economy has suffered to achieve high economic growth rates since the beginning of the 80's without having to live bubbles and financialization<sup>135</sup>.

### 2.3. Which are the most relevant causes that may have caused a situation of secular stagnation?

Among all the causes considered and analyzed in the previous sections, two are the most relevant to understand the situation of developed economies after the Financial Crisis and by extent the current situation of apparent secular stagnation: (1) Tight monetary policy and (2) Declining population growth and aging population. Other causes might indeed be having some relevance with regard to the current situation but they're not believed to be the most relevant ones. In great measure, the two causes chosen in fact encompass or are closely related with the majority of the other causes. The two causes from the "Supply-side causes" section that affected both labor productivity and employment are not considered relevant, they're merely theoretical explanations which are certainly difficult to measure and analyze empirically. That's the reason why they have not been taken into account either.

Having said that, the reasons why two causes – one from the demand-side and another from the supply-side – have been selected as the most relevant ones and not others are exposed in the following two sub-sections.

#### 2.3.1. Tight monetary policy as a relevant cause

Tight monetary policy has indeed been a major cause of why the Financial Crisis affected quite dramatically not only the financial sector but the rest of the economy. Yet, monetary policy was probably the key factor that did not allow the different economies from falling in another Great Depression<sup>136</sup>. Even so, Central Banks still have enough non-conventional tools to steer the nominal economy, to lower the unemployment rate and, ultimately, to boost Nominal GDP. This just means that Central Banks alone still can do more to boost demand<sup>137</sup>. Therefore, the first reason of why tight monetary policy is a very

<sup>135</sup> See more in Smith (2011).

<sup>136</sup> San Francisco Federal Reserve President John Williams in fact affirmed that: "Bernanke [FED president during the Financial Crisis] saved the US from another Great Depression" (Fox Business, 2014). As it has been said previously, there is also the opposite case; the ECB interest rates hike in 2011 plunged the Euro area into a recession again (Sumner, 2012).

<sup>137</sup> Which is perfectly exemplified by the very recent ECB interest rate cut to stimulate the economy and increase inflation (Blackstone, 2014).

relevant cause behind the weak recovery in many countries – especially European countries – is due to the importance that monetary policy conducted by the different Central Banks has over steering the nominal economy and boosting Nominal GDP. A “tight” monetary policy in a time of economic recession only helps to worsen the situation, and this was exactly the case during the 30’s Great Depression.

The second reason of why tight monetary policy is a major cause of the secular stagnation is indeed much related with the first one. Insofar as monetary policy affects the nominal economy, it exerts a lot of influence over interest rates, insofar as Central Banks sets the nominal interest rates and they also affect the expected inflation rate. This means that the first demand-side problem exposed – the one about the real interest rate and the natural real interest rate – has a lot to do with the stance of monetary policy. If the Fisher equations states that the real rate is equal to the nominal rate minus the expected inflation rate and monetary policy affects the expected inflation rate – usually because Central Banks sets the nominal rate, which is already zero or slightly above zero in almost all developed monetary areas –, then central banks could equal the real interest and natural real interest rate by lowering even more the real interest rate (i.e., by making it more negative). This can be done only through a higher inflation target – insofar as the current 2% is not enough to equal the natural and the real rate – because nominal interest rates cannot be cut below zero<sup>138</sup>. With a higher inflation rate, the real rate would be still more negative and it could equal the natural real interest rate. Therefore, monetary policy also helps to solve the first demand-side problem exposed in the Causes’ section<sup>139</sup>. Again, a “tight” monetary policy in a time of economic recession only helps to worsen the situation, because it does not boost aggregate demand and move the real interest rate away from the natural real interest rate consistent with full employment.

The third reason is probably the most important one to conclude why “tight” monetary is probably the most important cause behind the current situation. Secular stagnation has been defined in terms of Real GDP growth, unemployment and inflation performance, and monetary policy directly affects the three of these economic indicators. Monetary policy affects the unemployment rate and inflation (in fact, these are the two mandates that the Federal Reserve has<sup>140</sup>) and it also affects Nominal GDP, which is Real GDP plus inflation. Thus, if one assumes that monetary policy is effective when nominal interest rates – conventional policy tool – have been lowered to zero though the use of non-conventional monetary tools – like Quantitative Easing or Forward Guidance<sup>141</sup> –, then one has also to assume that monetary policy can lower the unemployment rate, increase the inflation rate and boost Nominal GDP enough to get the economy out of a secular stagnation.

### **2.3.2. Declining population growth and aging population as a relevant cause**

While the previous one was a demand-side cause, this is a supply-side one. The main reason why a declining population growth and aging population is seen as a very relevant cause of why the developed world is suffering a period of secular stagnation after the 2007-08 Financial Crisis is because this variable affects almost all the other considered, either directly or indirectly. Population growth is absolutely crucial for economic growth. The sharp decline in population growth since the late 70’s and the subsequent aging of the population is posing great dangers over the economy and seem to have certainly influenced in the trajectory of it since the Financial Crisis. In the US, for instance, baby-boomers are

<sup>138</sup> “In other words, the interest rate on loanable funds cannot fall below zero because holding cash guarantees a rate of return of zero. If the Fed tried to cut interest rates below zero, money would dominate debt instruments as a portfolio investment” (Mankiw, 2009)

<sup>139</sup> Of course, in this study it is believed – and there are many empirical reasons to believe this – that unconventional monetary policy such as quantitative easing can be effective at the zero lower bound so that the majority of developed economies are not in a liquidity trap and central banks are still powerful enough to boost Nominal GDP. See Sumner (2009), Sumner (2013b) and Sumner (2014b).

<sup>140</sup> “The Congress established the statutory objectives for monetary policy – maximum employment, stable prices, and moderate long-term interest rates – in the Federal Reserve Act. The Federal Open Market Committee (FOMC) is firmly committed to fulfilling this statutory mandate” (FRS, n.d.).

<sup>141</sup> Very briefly, Quantitative Easing (QE) can be understood as printing money to buy assets like government bonds, thus stimulating the economy inasmuch as new money is put in the pockets of government and private agents. Forward Guidance consists on a promise over how long the central bank will keep interest rates low regardless of the economic situation. This theoretically affects private agents’ expectations of inflation.

beginning to retire while younger generations are smaller in number. This is aging the population of the US and also of other countries with similar situations. Furthermore, a declining population since the 70's has also affected the growth of the labor force, which, as it has been shown, have been stagnated in the majority of developed countries for the last years, falling in a majority of them since the crisis outbreak. A declining population also affects consume, spending, investment and saving, as well as an aging population also affects these same indicators (in other reasons for what in the income and wealth inequality section was explained as the marginal propensity to consume and save). The tendency also seems to be in general of an even lower population growth in the future if nothing changes dramatically, what would directly entail an aging population. This would probably have a direct impact over GDP growth, insofar as consumption is a big share of GDP<sup>142</sup>, and if the population progressively shrinks, consumption will also decrease and thus GDP.

A second reason of why this cause has been chosen as especially relevant is because population growth also indirectly affects the real interest rate insofar as it affects consumption, demand, investment and savings. Therefore, population growth is also related with the relevant cause previously exposed. The third reason of why this cause is especially important is because the trend is almost equal in all countries. That is to say, there is a tendency toward lower population growth rates and an aging population in all nations since the late 70's, a tendency that has only been offset during the booming years in some countries thanks to big inflow of immigrants. This inflow is highly improbable now, with many economies in dire straits, rather the opposite; namely: a progressive loss of population<sup>143</sup>.

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<sup>142</sup> See for instance household final consumption expenditure (formerly private consumption) that is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households, and it is around 50% of GDP or above it for almost all developed nations (World Bank, 2010).

<sup>143</sup> "For the first time on record, birthrates in southern and Eastern Europe had dropped below 1.3. For the demographers, this number had a special mathematical portent. At that rate, a country's population would be cut in half in 45 years, creating a falling-off-a-cliff effect from which it would be nearly impossible to recover" (Shorto, 2008).



## CONCLUSIONS

There are some important aspects to highlight about the study. First of all, a very important one that has to be mentioned is the definition of secular stagnation. This study has presented a consistent and specific definition of “secular stagnation”, with a description of what it entails, which are its most important features and which is its role in the context of the current economic recovery. This definition has certainly served to delimit the borders of the concept, and it has served as the basis upon which the following analysis and discussion has been based. Another important aspect of the study has to do with the analysis and exposition of the historical and economic context surrounding the concept of secular stagnation. This general context is crucial to understand why the problem of a secular stagnation has been raised. The analysis of the Great Depression has served not only to see the differences and similarities between that crisis and the current one, but it has also allowed to introduce the first Alvin Hansen “secular stagnation hypothesis”, the first time this expression was used and defined. Finally, it’s also worth mentioning the systematic exposition of the different causes’ that has been done in the study, dividing them into demand-side causes and supply-side ones. All these aspects have helped to create a solid framework of analysis of the current economic situation from the perspective of a situation of secular stagnation as a hypothesis for the long years of weak growth, high unemployment and low inflation that have passed since the 2007-08 Financial Crisis.

The study has also deepened effectively in many aspects of the current economic situation in many countries, although always taking a general perspective of the developed world and focused on it. This study has deeply analyzed the economic situation since the outbreak of the crisis, putting on the table some answers to respond to the different problems. The depth analysis conducted of the different variety of causes has allowed reaching some important conclusions.

Among the different conclusions that this study has reached, two are the most important ones. The first important conclusion is that the developed world, by and large, is indeed suffering from secular stagnation, as it has been defined also in the study. This conclusion is the direct answer to the first objective raised; namely: are developed economies really suffering from secular stagnation? Yes. This response is based on the analysis of the different economic indicators that were used precisely to define the concept of secular stagnation for a set of countries that was representative of the developed world. Despite some obvious differences between countries and perhaps despite some exceptions by some countries in some indicators, the trend was enough clear and sufficiently common to a representative number of countries to conclude that the developed world was indeed suffering from secular stagnation.

The second important conclusion is that two are the most relevant causes that explain why the developed world as a whole is in such situation: tight monetary policy and declining population growth and aging population. This conclusion is the direct answer to the second objective raised; namely: which are the most relevant causes that may have caused a situation of secular stagnation (because from the answer to the first question it has been concluded that there is indeed a situation of secular stagnation)? Tight monetary policy and declining population growth and aging population. Again, this response is based on the analysis of the different causes exposed to explain the current economic situation. From all them, it was decided that these two were the most relevant ones, mostly – although not only – because they affected directly or indirectly the great majority of other causes considered and show a broad correlation, from their respective demand and supply side respectively, with the kind of problem studied. Other causes might as well be relevant, but these two were considered the most important ones for the reasons given.

Other secondary but also important conclusions can be extracted. These other conclusions are in greater or lesser extent related with the two main conclusions previously exposed. It’s worth noting how concluding that tight money is being a cause that explains the current situation means that there is a clear parallel between this crisis and the Great Depression, where monetary policy also highly influenced the path of the recovery. Another conclusion is that signaling a low population growth rate as a relevant cause

of this situation is clearly pointing out that the situation might be difficult to overcome insofar as the population trend has been downward for a long time and there is no clear sign to think it should rise in the near future. Finally, from the data analysis it appears very clearly that this crisis has affected and is affecting a wide range of different economic indicators, not only those used for the definition of the concept of secular stagnation (Real GDP, unemployment and inflation), but also other like labor force growth, long unemployment rate, etc. Ultimately, it has been shown the depth, severity and singularity of the crisis in all its fronts.

It's also important to mention that although no direct solutions have been proposed to overcome the problem, the analysis of the causes imply which could be the solutions that will fit best to boost a strong recovery and get out of this situation of secular stagnation. Tight monetary policy implies that is needed a more expansionary policy in order to rise inflation, lower the unemployment rate and, ultimately, boosting Nominal GDP. Therefore, a first solution to the problem will indeed imply a more aggressive monetary policy pursued by the different central banks in each of the monetary areas. The second solution is maybe harder to concrete insofar as it is difficult to reverse the historic low population rates in many countries. One solution would mean receiving a higher inflow of immigrants, something that already happened in some European countries in the years previous to the crisis. The other solution inevitably entails increasing the birth rate. These are indeed the two most important solutions regarding the two most relevant causes that have been signaled.

Even so, this study leaves the door open for other researchers to make some contributions in the different fields opened throughout the study. Some of the ideas exposed could in the future serve as new lines of deeper investigation and the same concept of secular stagnation could still be more studied and analyzed. This study, hence, gives a certain vision about the problem and it has certainly tried to address it as directly as possible within the established limits. Nonetheless, new research may still shed some more light on the issue.

## BUDGET

The following table shows the approximate cost of conducting this study:

Table 13: Budget [source: own elaboration]

Concept	Quantity	Unit price	Total
Completion time of the study	720 h	15 €/h	10800€
Black and white prints	100 pages	0.05 €/page	5 €
Color prints	94 pages	0.45 €/page	42.3 €
Book binding	1 copy	4 €/copy	4 €
CD's	5 units	1 €/unit	5 €
<b>TOTAL</b>			10856.3 €



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