

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics



Diploma Thesis

Causes of increasing income inequality

Sébastien BARC

© 2020 CULS Prague

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

DIPLOMA THESIS ASSIGNMENT

Sébastien Barc

Economics Policy and Administration
Business Administration

Thesis title

Causes of increasing income inequality

Objectives of thesis

The main objective of the thesis is to analyse the different factors that led to the increasing income gap and try to forward factual evidences of it through practical analyses of different countries.

The aim of that thesis is not to make a judgment on whether increasing income inequality is a bad thing or not, but it aims to understand that phenomenon, pointing out that it exists and how the society created it, but also that it has various consequences whether it may be on a national or international level, economic or social level etc.

Methodology

The thesis will be divided into three parts.

The first part is a theoretical one and is based on literature search. It defines the current state of knowledge in the field of the income inequality. In this part, articles, books, researches and different electronic resources will be used to provide information. Methodologically, this part of the thesis will be the analysis of documents.

The second part will rely on the theoretical part and it is the key component of the thesis. Methods of quantitative research such as statistical and mathematical methods will be used in this part. The analysis will be done on the chosen country.

The final part concludes the results of the previous parts and discusses it with another author.

The proposed extent of the thesis

60- 80 pages

Keywords

Inequality, globalization, education, minimum wage.

Recommended information sources

- Autor, David H. 2014. "Skills, Education, and the Rise of Earnings Inequality among the 'Other 99 Percent.'" *Science*. American Association for the Advancement of Science. <https://doi.org/10.1126/science.1251868>.
- Jonathan J B Mijs, The paradox of inequality: income inequality and belief in meritocracy go hand in hand, *Socio-Economic Review*, , mwy051, <https://doi.org/10.1093/ser/mwy051>
- Macchia, Lucia, Anke C. Plagnol, and Nattavudh Powdthavee. 2019. "Why Do People Tolerate Income Inequality?" *Harvard Business Review* , no. November. <https://hbr.org/2019/11/why-do-people-tolerate-income-inequality>.
- Milanovic, Branko. 2013. "Global Income Inequality in Numbers: In History and Now 1." *Global Policy* 4 (2): 198–208. <https://doi.org/10.1111/1758-5899.12032>.
- Muller, Jerry Z. "Capitalism and Inequality: What the Right and the Left Get Wrong." *Foreign Affairs*, vol. 92, no. 2, 2013, pp. 30–51.
-

Expected date of thesis defence

2020/21 WS – FEM (February 2021)

The Diploma Thesis Supervisor

doc. Ing. Irena Benešová, Ph.D.

Supervising department

Department of Economics

Electronic approval: 20. 3. 2020

prof. Ing. Miroslav Svatoš, CSc.

Head of department

Electronic approval: 20. 3. 2020

Ing. Martin Pelikán, Ph.D.

Dean

Prague on 26. 11. 2020

Declaration

I declare that I have worked on my diploma thesis titled "Causes of increasing income inequality" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on November 26th, 2020

Acknowledgement

I would like to thank Mrs Benešová Irena for her advices and support during the work on my thesis.

Causes of increasing income inequality

Abstract

Income inequality is a hot point of social debates and a hobbyhorse for policymakers, economists, journalists... Indeed, we witness a paradox from which, on one hand, individuals have never been richer than they are today, and on the other, that the gap between the richest and the poorest is as high as ever. Throughout that thesis, we have seen that pre-tax income inequality trickle from various factors and pointed out factual evidence of it in the analysis of France and Spain. Furthermore, we found out that inequalities over the last century evolved a lot, and that in general, the large majority of individuals tend to know very little on the subject whereas it provokes a lot of social reactions. Finally, the practical analysis showed that for both France and Spain, actual increasing income inequality are hurting especially the middle class, as they are the only category of earners to be left aside global enrichment of our society, translating a real concern as the middle class is crucial for any successful economy.

Keywords: Income, inequality, income inequality, France, Spain, economy, globalization, skill-biased technological change.

Příčiny zvyšování nerovnosti příjmů

Abstrakt

Nerovnost v příjmech je společenských debat a zároveň neuralgickým bodem pro tvůrce politik, ekonomy a novináře. Moderní svět získává přístup k stále více datům, proto se na tyto nesrovnalosti často upozorňuje. Zároveň nastává situace, kdy se výrazně zvyšuje bohatství jednotlivců i populace a zároveň se zvyšují rozdíly mezi jednotlivci. V průběhu zpracování této práce jsme poukázali na fakt, že nerovnost příjmů před zdaněním má mnoho příčin a zároveň jsme tyto příčiny rozebrali na případu Francie a Španělska. Dále jsme zjistili, že nerovnosti se v minulém století hodně rozvinuly a že existuje malá míra informovanosti o tomto tématu, což vyvolává řadu negativních sociálních reakcí. Nakonec praktická analýza ukázala, že ve Francii i ve Španělsku skutečně narůstá nerovnost v příjmech, která výrazně poškozuje zejména střední třídu. Hlavním důvodem tohoto zhoršení je, že střední třídě plynou nejnižší „zisky“ z probíhající globalizace společnosti. Tento faktor představuje výrazný problém, protože střední třída je rozhodující pro každou úspěšnou ekonomiku.

Klíčová slova: Příjmy, nerovnost, nerovnost příjmů, Francie, Španělsko, ekonomika, globalizace, technologické změny založené na dovednostech.

Table of content

1 Introduction	12
2 Objectives and Methodology	13
2.1 Objectives.....	13
2.2 Methodology	13
3 Literature Review	15
3.1 Why do we care about income inequality?	15
3.2 What are the major causes of increasing income inequality?	19
3.2.1 Globalization.....	19
3.2.2 Capitalism and free market.	26
3.2.3 Skill-biased technological change & Education	29
3.2.4 Gender.....	36
3.3 What are the consequences?.....	40
4 Practical Part	47
4.1 Case study of France.	47
4.1.1 Overall economic situation.	47
4.1.2 Income disparities.	56
4.2 Case study of Spain.	63
4.2.1 Overall economic situation.	63
4.2.2 Income disparities.	76
5 Results and Discussion	86
5.1 Comparison between France and Spain.	86
6 Conclusion	89
7 References	91

List of Pictures

Graph 1: U.S. Average income, 2017

Graph 2: Richest 1% share of U.S. income and official U.S. poverty rate, 1968-2017

Graph 3: Exports of goods and services (in % of GDP).

Graph 4 : Evolution of the number of manufacturing workers in the U.S.

Graph 5: GINI Evolution 1988 to 2015.

Graph 6: Top 1% in Other OECD Countries

Graph 7: The skill premium: Skilled vs Unskilled wages per hour (normalized with 1963=1)

Graph 8: Real minimum wage, 1973 - 2000.

Graph 9: Median annual income by level of Education, U.S. 1990 - 2010.

Graph 10: Change in Real Wage Levels of Full-Time Male by Education, 1963 - 2012

Graph 11: Mean years of schooling:

Graph 12: Trends in GDP and Per-Capita GDP, 1952-2008 (in 2008 RMB)

Graph 13: Relationship between health & social problems and income inequality

Graph 14: GDP Growth from 1990 to 2019.

Graph 15: Unemployment rate (%) in France

Graph 16: GDP & Unemployment evolution

Graph 17: Public Unemployment Spending.

Graph 18: Tax to GDP ratio

Graph 19: Tax and Social Security Contributions, as % of Gross Income.

Graph 20: Index of consumer prices, France

Graph 21: Real minimum wages - France

Graph 22: Average Household Disposable Income

Graph 23: GINI index evolution 1990-2018

Graph 24: Income share in France

Graph 25: GDP growth of Spain, 1990-2019

Graph 26: Unemployment rate (%) in Spain

Graph 27: GDP & Unemployment evolution for Spain

Graph 28: Public unemployment spending

Graph 29: Tax to GDP ratio

Graph 30: Tax and Social Security contributions, in % of gross income

Graph 31: Index of Consumer Prices - Spain

Graph 32: Real minimum wage - Spain

Graph 33: Average Households Disposable Income - Spain

Graph 34: GINI Index evolution 1990-2018

Graph 35: Income share in Spain

Graph 36: Distribution of self-perceived income decile and actual income decile

Graph 37: Average perceived decile by income group

Figure 1: Pay gap between women and men in sampled countries, 2016, % of men's full-time wages

Figure 2: Average pay gap between women and men, 2016, % of men's full-time wages

Figure 3: Pay gap between women and men, by job level, 2016, % of men's wages.

Figure 4: Kuznets Curve

Figure 5: GINI Index England

Figure 6: Great Gatsby Curve

Figure 7: Question: "Among the listed inequalities, which are the three most unfair to you?"

Figure 8: Question: "Globally, in the last 10 years, would you say that inequalities in our country have...?"

Table 1: Spanish female labour force participation rate, 1975-2018

List of Appendix

Appendix 1: All Trade Agreements from 1948 to 1990

Appendix 2: All Trade Agreements from 1948 to 2010

Appendix 3: 2015 College Return on Investment Report: Best Value Colleges in the US – PayScale.

Appendix 4: The Four Stages of Contributions

Appendix 5: The Four Stages of Contributions Appendix 6: Top 0.01% Income shares in Spain

List of abbreviations

CPI = Consumer Price Index

CPS = Current Population Survey

E.U. = European Union

ESM = European Stability Mechanism

GDP = Growth Domestic Product

IFOP = French Institution of Public Opinion

INI = Instituto Nacional de Industria

ISSP = International Social Survey Program

OPEC = Organization of Petroleum Exporting Countries

PPP = Purchasing power parity

RPPI = Residential Property Prices Indices

SBTC = Skill-Biased Technological Change

SMI = Spanish Minimum Wage

SMIC = French Minimum Wage

U.S. = United States

VAT = Value Added tax

WID = World Inequality Database

1 Introduction

Income inequality is a hot point of social debates and a hobbyhorse for policymakers, economists, and journalists. Indeed, as our modern world get access to more and more data, such discrepancies are being pointed out frequently, and the population giving nowadays a bigger credit to social welfare due to our societal evolution makes income inequality to be less accepted and more debated.

The gap between income of the richest and income of the poorest is at its climax in decades, especially in countries defined as advanced economies, therefore bringing the questions on how did we reach that point and what does it imply. Before diving into the subject, it is important to define what income inequality is: *“Income inequality is how unevenly income is distributed throughout a population. The less equal the distribution, the higher income inequality is.”*. That subject does not treat about wealth inequality, which, whereas it is a topic closely related to income inequality, does not trickle necessarily from the same causes, and its evolution might also be the results of different events.

Furthermore, it is important to note that during the practical part of that thesis, the income inequality analysis will be focused on pre-tax income, therefore excluding any taxation system as well as transfers. Through that thesis, we will first have a look on the actual literature review covering income inequality, in order to understand why does that topic matter and takes a bigger and bigger place in social, what are the causes of such inequalities and what are the consequences of it. The second part (practical part) will be focused on an analysis of income inequality in France and Spain, covering for both at first an economic overview of the country and then an analysis of its income inequality through GINI index, income shares repartition as well as individuals' perception of it, before discussing the results in the last part of that thesis.

2 Objectives and Methodology

2.1 Objectives

The income gap between the wealthiest and the poorest increasing over the years, it is essential to understand how this phenomenon is happening and what is causing it. The overall objective of that thesis is to analyse the different factors that led to that increasing income gap and try to forward factual evidences of it through practical analyses of different countries. To achieve this objective, I am addressing in that thesis different parts:

- Understand why we care about income inequality.
- Assessing its causes and consequences.
- Providing real life examples that help us to understand its dynamic.

The aim of that thesis is not to make a judgment on whether increasing/decreasing income inequality is a bad thing or not, but it aims to understand that this phenomenon exists and how society created it, but also that it has various consequences whether it is on a national or international level, economic or social level etc. Income inequality is a vast and complex subject: many economists have been, and still are, arguing about its effects, its causes, its evolution etc., and it is a matter of intellectual humility to say that the research papers presented, as well as that thesis, do not put ahead common and absolute truth, and that it may be questioned in further literature. Indeed, that thesis tries to put ahead the different school of thoughts existing on the matter, in order to let the reader make up his own mind about the addressed issue and the problems it raises.

2.2 Methodology

The methodology used in that thesis has been pretty straight forward in the sense that most of the sources are issued from academic papers or web articles written by experts on the matter. To find these papers and articles, I have used mainly two methods: the first one was typing on websites like google.scholar.com some keywords of my subject in order to find out relevant paper addressing the issue, the second one was to use the references used in the previous said papers in order to explore them more and find more literature resources to use. The graphs, figures and appendix present in the thesis are either extracted from those papers and articles, found by digging into the concerned matter in order to find relevant graphic representation or created by my own based on

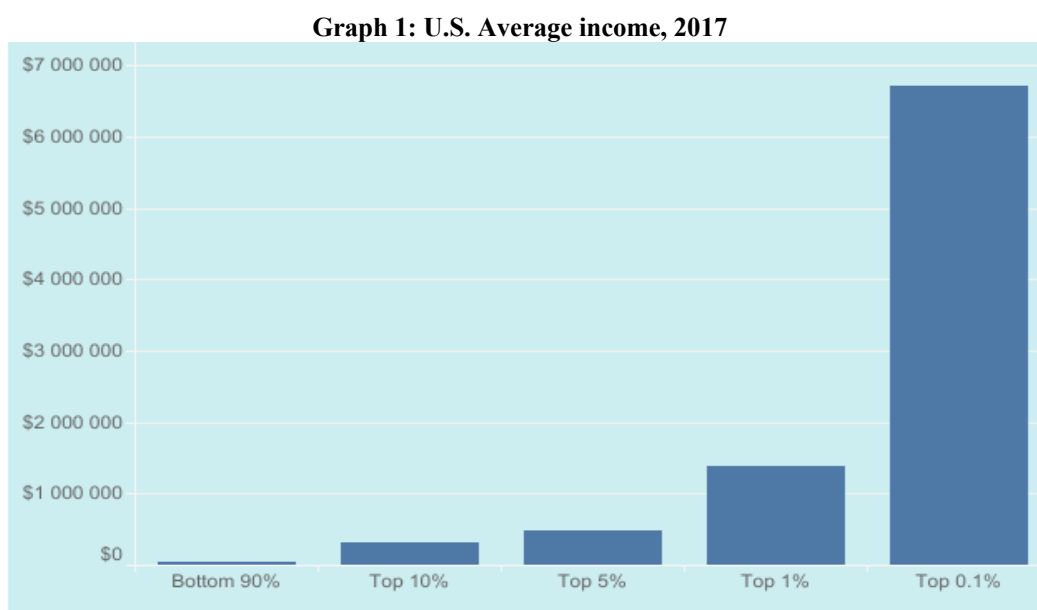
available database such as The World Bank, Eurostat, WID etc. The reason behind that process is that this subject has already been covered a lot of times, both in our modern days and in the past, therefore a lot of literature is available and the best way, in my opinion, to give a global picture was to use the most important papers on the matter and dig into what inspired them. Also, when I discuss the income inequalities evolution in the practical parts (for France & Spain), we are referring at pre-tax income and not post-tax one. Firstly, I believe that analysing the evolution of income distribution throughout the years without accounting for the redistribution of states (through taxation, transfers etc.) gives us a better approach on how it naturally happened and depicts a more relevant point of reflection on the matter, and secondly that pre-tax income inequality has been way less investigated than post-tax income inequality. Indeed, the gross income inequality evolution better highlights the causes that led to the narrowing/widening gap compared to what the post-tax income does, as taxation would significantly redistribute the cards and would hide causes that created inequality in the first place.

Furthermore, my choice to focus my practical analysis on France and Spain is due to several reasons: first, France being my native country, I naturally had that extra interest into digging on the matter for my country, but also that, when thinking outside the box, France is a country where inequalities, and more generally, social concerns, are genuinely important and are constituting hot points, which make it a good candidate for observing its income inequalities evolution, and the reason why we find more content to work on compared to other countries. On the other hand, Spain is quite similar to France on some points: both are among the five largest economies of the European Union, both have to deal with high unemployment since decades, they both are members of the EU and the euro zone, are geographic neighbours etc. However, when it comes to income inequalities, France has one of the lowest Gini index among the EU and OECD countries whereas Spain has one of the highest. That constatation surprising me it led me to choose Spain as our comparison point.

3 Literature Review

3.1 Why do we care about income inequality?

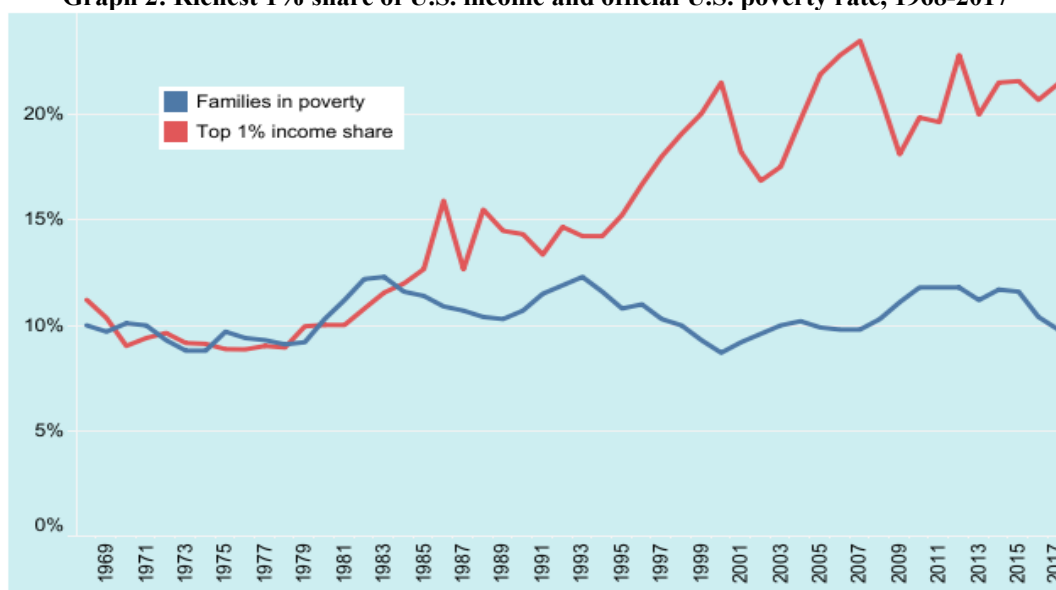
Income inequality is one the hottest topic discussed in our society and it became a real hobbyhorse for policymakers and researchers. The gap between income of the richest and income of the poorest is at its climax in decades, especially in countries defined as advanced economies.



Source: Emmanuel Saez, UC Berkeley, 2019

Taking the example of the United States with the graph 1 above, in 2017, the richest 0.1% are earning 188 times more than the bottom 90% in term of average income. This disparity is not only existing between the poorest and the richest, but between the top 0.1% and all the other economic classes. In truth, the top 10% are earning almost 21 times less than the top 0.1%, top 5% around 14 times less and around 5 times for the top 1%. This graph shows that the income inequality gap is not an issue between wealthiest and poorest, but between the wealthiest and the rest. Despite the fact that income inequality gap is as wide as ever, the income of an average person in the world kept growing over the decades and now corresponds to 4,4 times more than in 1950 (\$3,300 in 1950 to \$14,574 in 2016).

Graph 2: Richest 1% share of U.S. income and official U.S. poverty rate, 1968-2017



Source: Emmanuel Saez, UC Berkeley and U.S. Census Bureau, 2019

However, the graph 2 above displays that the income share of the top 1% has almost doubled, moving from 11% in 1968 to 21% in 2017, whereas families in poverty kept a steady income share of 10% over the decades. These different statements create an enigma for experts, world's wealth has never been that high- and yet- income inequality has never been that high either. Therefore, identifying the causes of that widening gap in term of income inequality constitute a major focus of research.

Before discussing what causes are creating this income gap and its consequences, it is relevant to focus on a first part on the question of why we care about income inequality. Indeed, that question is discussed a lot among economists, and we can distinguish two school of thought: the side dismissing the relevance that income inequality does matter, and the side defending that income inequality does matter. Dabla-Norris, Kochhar, Ricka, Suphaphiphat, and Tsounta (2015) stated that equality is a meaningful value specific to most of our societies, and that its absence among individuals can turns into a lack of income mobility and opportunity, “*a reflection of persistent disadvantage for particular segments of the society*”. Milanovic (2014) points out that globalization being now entirely part of our functioning societies, income inequality does not remain a problem on a nation-state level but a worldwide one, therefore everybody should be concerned. Globalization has connected us with people around the globe, we gained knowledge about their others' lifestyle, purchasing power, consumption habit etc. and “*the knowledge of how other people live and how much money they make influences strongly our perception of own income and position in the income pyramid... Once we*

compare ourselves with people from other parts of the world, we are indeed interested in global income distribution. Global inequality begins to matter.”.

In a paper published in 2007, Milanovic developed that sentiment of comparison between individuals and talked about the notions of justice and propriety. These two notions come along with the sentiment of equality advanced by Dabla-Norris et al (2015). To illustrate these notions of justice and propriety, Milanovic describes an example where four economists that participated at a same project receive money from someone for the said project. One is receiving 20,000\$ whereas the others are receiving few cents. The statement is the following: even though everybody is better-off (everybody's income has increased), the huge gap between the different amounts donated created a sentiment of injustice for the majority of the economists because they compared themselves to the one who earned 20,000\$. Following this experience, Milanovic (2007) made a statement that we can often observe among individuals and that is also described in the cinema industry, series etc., income is not only a way for us to buy goods and services, it also translates how worthy we are to the society. The amount of money we earn is depicting our value among a company, how valuable we are in a society... It becomes more of a recognition symbol than a way to afford products, and this is why income inequality can become a problem, if this gap between high income and low income is not justified it will be viewed as “*a slight to people's own worth*”. This observation is also shared by Macchia, Plagnol and Powdhavee (2019), individuals care a lot about where they stand within a group and between their peers. The important place that income inequality has in a person's welfare is often referred by many economists as a statement of envy. Even though, this statement of envy might not be considered really relevant in order to explain that phenomenon, Milanovic declares that if a significant majority of people do feel envious of other people's money and therefore are mainly driven by that, other people's income become the only thing we have to concerned about, since it impacts directly our own welfare, and not a “*spiteful egalitarianism*” as described by Feldstein (1998).

We do know realize that income inequality matters, but a paper realised by the Cambridge University showed that people living in more inequal countries are less concerned with income inequality than people living in more egalitarian countries. In line with that statement, Mijs (2019) explains that in these countries, people believes in meritocracy, the harder you work, the higher your income will be, believe in the American dream that is gradually vanishing in the United States. This

study shows an interesting fact that is not concerning the scope of this thesis but is worth to be stated, income inequality is mainly a problem for countries that do not have this phenomenon. Whereas people living in more unequal countries see this as an opportunity, as a society where hard work is paying off and where climbing that ladder result in true personal achievement and desirable life goal, more egalitarian countries see it as a source of problem and opportunity inequality that will end up in negative effects for the concerned country.

Whereas income inequality is principally perceived as an important social issue that have to be addressed with urgent measures, some economists argue that income inequality itself is not the overwhelming ill that we have to take care of, but poverty is. Indeed, Henderson (2018) states that income inequality does not make any concern as long as this income has been earned legitimately and that it makes everyone better-off. In his paper, he comes along with two examples about two of the richest man on the planet: Bill Gates & Carlos Slim. The statement is as follows: Bill Gates by creating Microsoft has made him extremely rich, but this Microsoft product also increased our welfare drastically by providing us with well-functioning personal computer. Nordhaus (2004), an economist at Yale University, estimated that creators and innovators were receiving only 2.2% of the innovation's gain, the balance being profitable essentially to consumers. Microsoft being valued at \$700 Billion; it would therefore mean that it created a value of around \$35 trillion for the community. In that case, it is fair to ask ourselves "is income inequality between Bill Gates and the others a bad thing or not?", and personally, I do not think so. Wesley and Peterson (2017) wrote that "*the poor suffers because they don't have enough, not because others have more*". Innovation making everyone better-off, although making a few extremely wealthy, should not be something to shut down, but something to promote. In his other example, Henderson takes the example of Carlos Slim, a Mexican billionaire that made his fortune by building a monopoly in the telecommunication industry in Mexico with the help of his government. This is when income earning becomes illegitimate, Carlos Slim used the monopoly provided by his government in order to charge high prices for telecommunication services, therefore, the only one benefiting of that situation was Carlos Slim, the consumers being worse-off inevitably. This position is also share by Mankiw (2013), where he displays that there will always be income inequality since it can be created merely by having various buyers for a good that only one person is selling, inevitably income inequality between them occurs, but here again, if everyone is better off from that voluntary exchange, no complaint should be made about that created inequality.

Income inequality has been increasing over the decades despite that people's average income has been also increasing, laying down questions on how such gap has been created and what is / will be its impact. However, we have to also keep in mind that income inequality is not necessarily a bad thing and do not always result from wrongdoings from individuals, which those should be fought and fix by policymakers, but can be the result from a functioning economy where innovation making high economic contributions, also reaped large gains.

3.2 What are the major causes of increasing income inequality?

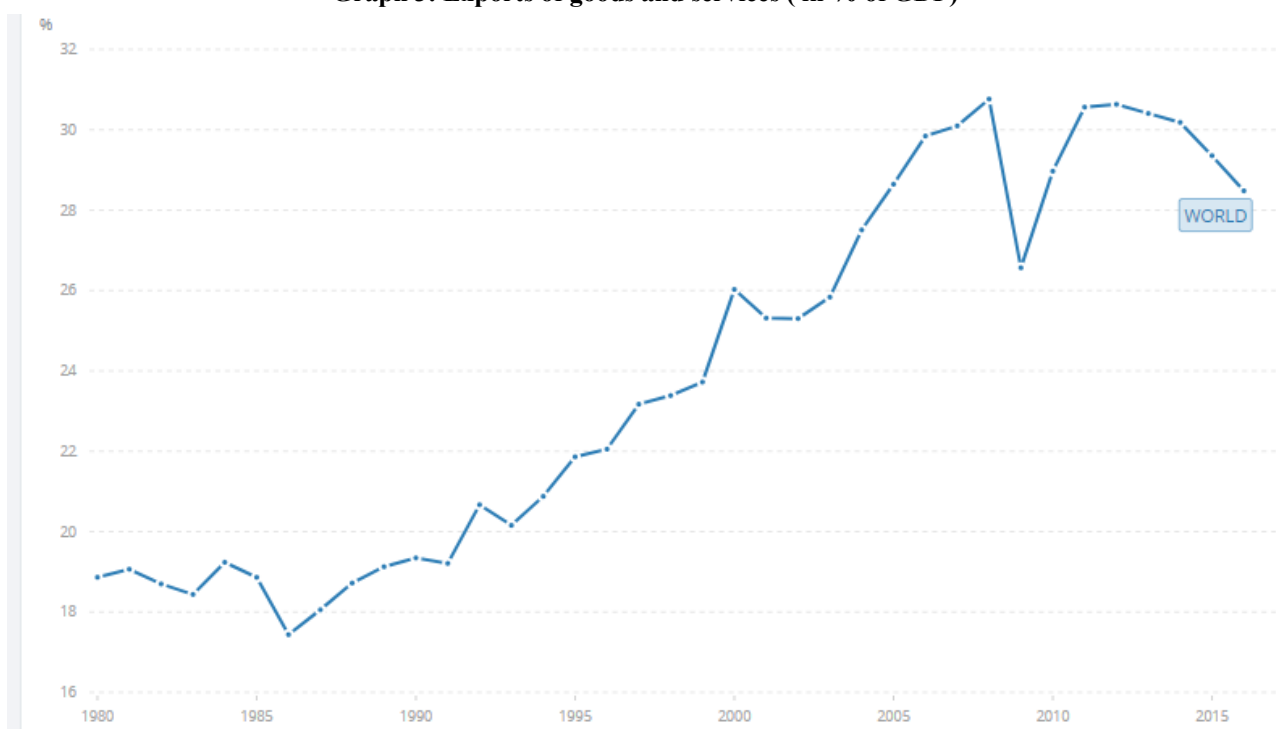
The reasons of increasing income inequality can be wide and often specific to a certain society, in that part we will be discussing the major tracks followed by economists on the matter. Even though the extent of such impacts is a subject of controversies among economists, they are relevant causes to a global analysis of the issue.

3.2.1 Globalization

As for the previous part of the thesis, globalization is dealing with two school of thoughts on the matter: on one hand the people thinking that globalization has a negative impact on income inequality and on the other hand people thinking it does have a positive impact. Despite the writings of many economists in late 20th century, globalization appears now as one of the sources of increasing income inequality. Income inequality gap started to get wider in the late 20th century, at the same time, we were entering the area of a relatively new phenomenon that we now know as globalization. This concern has been the subject of numerous articles trying to assess the possible impact that such globalization could cause on individuals' wages. A number of economists, including Krugman (1995), addressed that concern through articles and came up with the analysis that this overdeveloping trade has a negative effects on less-educated and low-skilled workers, but that these effects could be classified as moderated, therefore, considering it as a prime cause of increasing income inequality was non relevant. These studies made in the later 20th century have to be put in their context: data available at the time indeed showed a worsening effect, but globalization being at its dawn, it was just not enough to raise a real concern about it. Nowadays and with the substantial amount of data now available, certain economists who thought that globalization was not a main issue of income

inequality are having a different approach on the matter and opinions start to change. Krugman admits that globalization have a much bigger role than what he, and other economists, described in 1995, and it is due to the fact that early 90s were the premises of a phenomenon that followed in the late 90s / early 2000s which has been qualified by Subramanian and Kessler (2013) as “hyper globalization”. Graph 3 below is showing the evolution of exports of goods and services worldwide and we can clearly see that the expansion of that hyper globalization happened between the late 90s and early 2000s. During that period (1995 to 2008), exports of goods and services rose from 21.862% to 30.764%, that to say an increase of 40.72%. Furthermore, this growth of hyper globalization in the late 90s is matching with the increasement observed in graph 1 regarding income share for the top 1% income and families in poverty. These new data are now displaying a positive correlation between globalization and income inequality, meaning that as globalization intensifies, so does income inequality.

Graph 3: Exports of goods and services (in % of GDP)

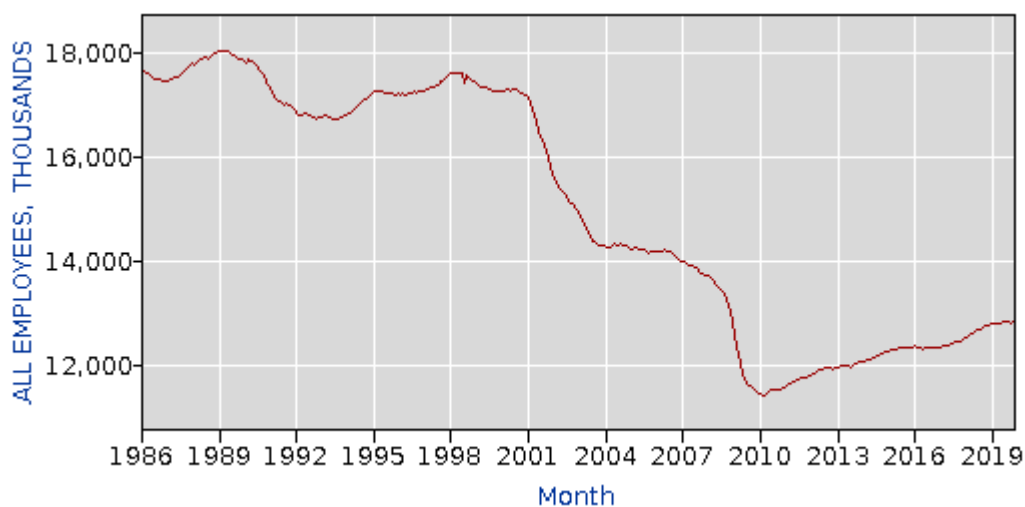


Source: World Bank national accounts data, and OECD National Accounts data files, 2020.

This expansion of trades led to the creation of trade agreements, free trade areas, decline in tariffs etc. allowing companies to reach out markets thus far uncharted. Between 1990 and 2010, 543 trade agreements have been signed worldwide. Appendix 1 and Appendix 2 are displaying a data

visualization of the evolution of trade agreements respectively for 1948 to 1990 and for 1948 to 2010. From 1990 to 2010, multiple trade agreements have been signed, and we can see 3 main dynamics: expansion of agreements between American continent (North and South) and Europe, multiplication of agreements between states of a same continent, and development of trade agreements in Asia. Çelik and Basdas (2010) explains that this trade liberalization has been beneficial not only for the companies of developed countries, but also for the ones in developing countries, making customers of these developing countries better off with globalization. These new possibilities also brought to companies new ways of reducing costs via low-wage labour, gentler taxation system, lower cost of raw material etc. Krugman (2019) claims for example that freight containerization, despite not being a new technology, was not very democratize until that period and that firms realized later the cost reduction ability of moving parts of the production process abroad. This hyper globalization increasing trade among companies worldwide, it also brought more competition for workers in richer countries from workers in poorer countries. Low-skilled job are the one especially impacted by it, causing wages of low-skilled workers in rich countries to decrease in order to stay competitive, therefore, the income inequality gap increased inevitably in the rich countries concerned. This analysis is defended by Borjas and Ramey (1994) that argue that trade openness in robust sectors is increasing competition and therefore leads to a decline in the wages of the labour. In addition to lowering low-skilled workers' wages, globalization has seen several developed countries closing their manufacturing plants in order to relocate them in Asia.

Graph 4 : Evolution of the number of manufacturing workers in the U.S.



Source: U.S. Bureau of Labor Statistics, 2020

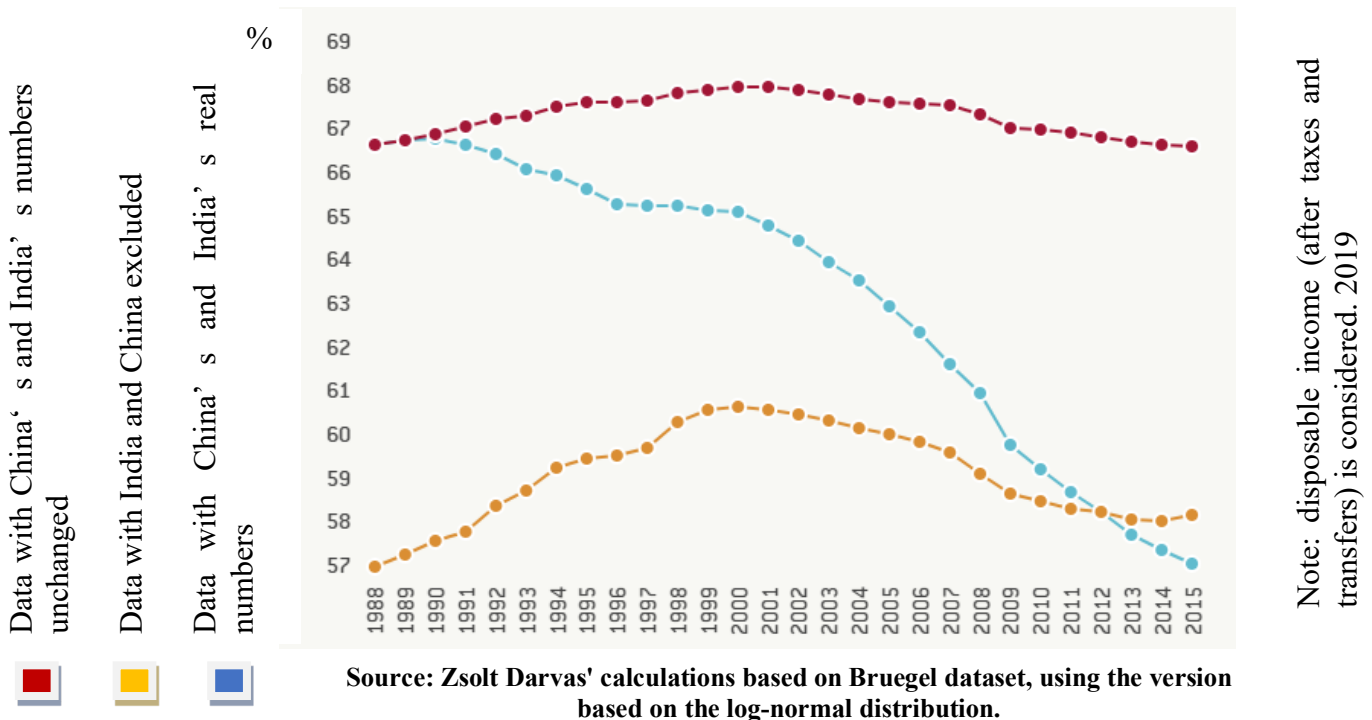
Graph 4 demonstrates the significant decrease of manufacturing jobs in the United States, even though it is slightly increasing since 2010. Between 2000 and 2009, the U.S. Bureau of Labor Statistics estimated that one third of U.S. manufacturing jobs disappeared, the local companies preferring to call upon Asian workers to complete these tasks.

Maskin (2014) explains that globalization brings two possible alternatives in term of inequality: the “less-worse” one would be that only one segment would benefit from higher wages (i.e. the high-skilled workers) when the other segments (low-skilled mainly) stay at the same level. In that case, the global economy is better-off and income inequality, despite increasing, becomes a “*necessary side-effect of increased economic growth within a country*”. The second alternative is that, as stated earlier, low-skilled workers encounter a decreasing demand which lead to lower wages, whereas high-skilled workers benefits from increasing international demand which lead to higher wages. In that second scenario, globalization is not making everyone better-off but just a fraction of the population and having one side of the population losing income share whereas another earning more of it is inevitably widening the income inequality even more. That change in the labour market, the rise of low-skilled workers available and the constant need for companies of high-skilled workers, can be explained with the Heckscher-Ohlin theory. That theory suggests that countries are exporting goods produced with the factors of production they are principally endowed and import goods needing production resources that are lacking in the country. A consequence of such practice is therefore a disturbance in the wages of these different factors in their domestic economy.

To illustrate that theory more clearly, we can take the example of China’s economic growth in the 1990s: the country is endowed with a large amount of low-skilled workers in comparison to high-skilled ones, consequently, China has used that work force to export a lot of manufactured goods since they do not require high-skilled workers for them to be produced, and they imported goods or services requiring these high-skilled workers that the country might be lacking of. The exponential growth of China’s population led to an enormous amount of low-skilled workers available on the international market, and when a commodity’s offer is way superior to its demand, the price (or in our case the wages) is falling, whereas the wages for high-skilled workers, thus limited, is rising. Despite increasing income inequality, another side-effect of the Heckscher-Ohlin theory, positive this time, is that since we have a higher number of goods manufactured by low-skilled workers (such as clothes, toys, tires etc...), the price of such goods are decreasing on the market.

I have talked about companies appealing to cheaper labour force abroad in order to reduce their costs, leading to an increasing income inequality gap, but globalization has also allowed firms to fetch cheaper materials over sea. In the 1970s, steel production in the United States was one of the most powerful industry in the country. The country peaked its production to 111.4 million tons in 1973, employing at that time around 512,000 people. At the dawn of globalization (1980–1990), the U.S. steel industry collapsed and two reasons were pointed out: the first one is the outdated and inefficient methods and machinery used in the country, and the second one was the pressure of foreign competition in that industry. American steel importations grew from 146,000 tons in 1946 to 24 million tons in 1978 and therefore the industry employment fell from 512,000 people in 1974 to 399,000 people in 1980. This revolution inescapably dived the steel industry into a dramatic rising unemployment rate and a decline in real income. Although globalization appears to be one of the roots of increasing income inequality, some studies demonstrate the opposite. Zhou, Biswas, Bowles, and Saunders (2011) made an analysis of 60 developed, transitional, and developing countries using globalization indices and Gini coefficient. That study highlighted an empirical evidence claiming that globalization has a robust negative relationship between the indices and the Gini coefficients, supporting the fact that globalization actually bolsters income inequality diminution. Darvas (2018) ended up with the same statement in his article. However, if the overall income inequality (calculated through Gini coefficient) is decreasing, it is entirely due to China and India. Graph 5 below is displaying the Gini coefficient evolution from 1988 to 2015 for 146 countries: the red line represents the 146 countries including data from China & India unchanged from 1988 in order to exhibit the theoretical evolution of the coefficient if these two countries haven't had the economic surge they knew. It is also to highlight the role that China & India plays in the overall decrease of income inequality. Blue line displays the normal evolution of Gini coefficient with China & India included with its real data, and orange line is displaying the coefficient progression without China & India (i.e. 144 countries).

Graph 5: GINI Evolution 1988 to 2015

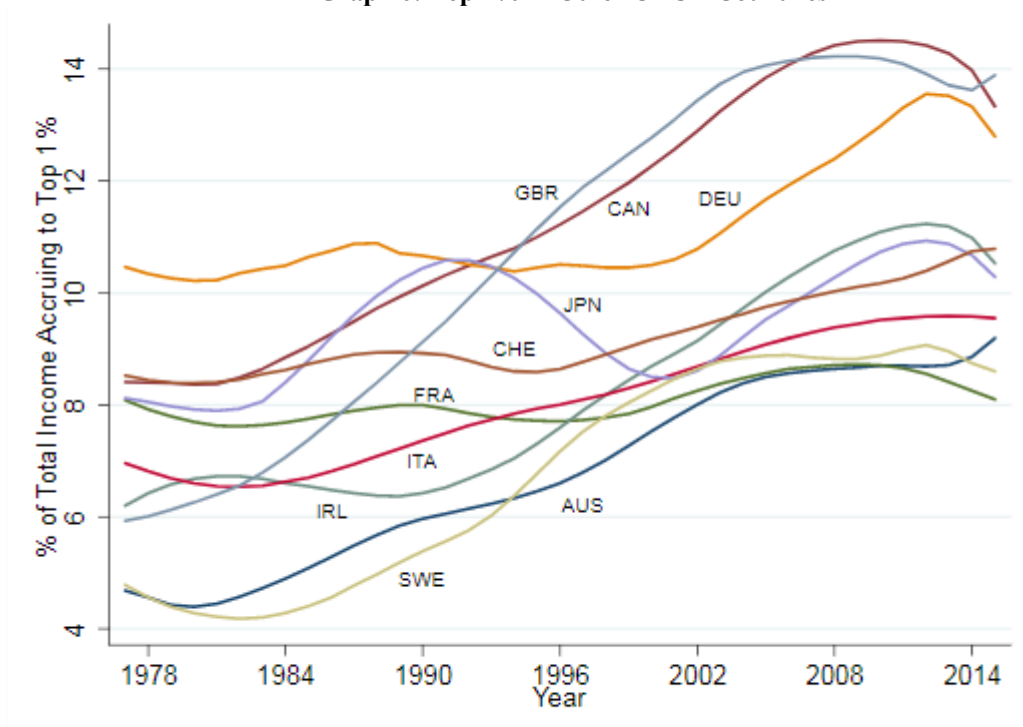


The red line does not necessarily bring important information in our analysis, the coefficient has held pretty much steady during almost 30 years and the fact that fixed data have been used for these periods makes it, in my opinion, not relevant in our analysis. However, the evolution of both blue & orange lines is displaying important knowledge: without China & India, the overall Gini coefficient would add up to 58.447, whereas including the two countries it adds up to 57.349 (+1.915%). We also witness that the curve of the 144 countries (orange line) increased from 1988 to 2000 before engendering a slowly decrease, in contrary of the blue line that witnessed a decrease of its Gini coefficient for almost every years, ending up with an overall decrease of 9.593 points in 30 years. The comparison of these two curves allow us to clearly state that worldwide income inequality is diminishing thanks to these two countries. To identify why their impacts are that important, we have to keep in mind that India & China are accounting for 37% of world's total population and that these countries, especially China, have experienced tremendously high economic growth over the past three / four decades. The GDP per capita growth, for example, grew of 554% over the past 33 years in India (\$311.43 in 1985 to \$2,037.69 in 2018) and 3223% in China for that same period (\$294 in 1985 to \$9,771 in 2018). This impressive economic growth resulted in a fast growing middle-class in the two countries: middle-class in China was representing 4% of the population in 2002 against 31% in 2012, in India the middle-class soared from 50 million in 2005 to 250 million in 2015 and is

expected to reach almost 600 million in 2025. The bulk of the overall decline in income inequality is explained by the income convergence of these two countries. Lee (2016) stated that “China’s strong and stable growth over the past three decades undoubtedly has benefitted the world economy.“, it certainly did, and we can therefore also state that China has also participated in reducing the worldwide income inequality gap.

Global income inequality has been decreasing during the previous years thanks to two developing countries in an economic surge, however, as shown in Graph 5, without these two it would a different story. However, this outcome also tells us inevitably that within-country income inequality has rose in the other countries. We have already seen within-country inequality for the United States in Graph 1 and we witnessed a significant increase.

Graph 6: Top 1% in Other OECD Countries



Source: Kernel-weighted local polynomial smoothed data from World Wealth and Income Database (WID; website: wid.world). 2017.

Keller and Olney (2017) published a research paper trying to explain why this income gap has been widening that much in the United States over the past decades, and they decided to analyse 10 other OECD (Organisation for Economic Cooperation and Development) countries to determine if this rise in income inequality was a trend within developed countries. Graph 6 above is displaying

the evolution of income share of the top 1%. As we can clearly see, the percentage of total income being distributed to the top 1% has increased in all the 10 countries analysed over the period 1978 to 2014. Even though the evolution of that gap is not similar in every country, we can distinguish a noticeable upward trend: in 1978 income share of the top 1% was varying from 4% to 10% and in 2014 it was located between 8% and 14%. Whereas globalization has, for the most part, made the world's economy better-off, this situation presents some concern and income inequality can be illustrated as an iceberg: the part we point out is that globalization has reduced overall income inequality, which is true as we've seen before, but the hidden part is that within-country inequality is as wide as ever and that represents a danger. Sala-i-Martin (2002) also propelled that overall income inequality decrease has to be taken with what it is worth, considering the huge population & economic growth of China. Indeed, China's growth has noticeably slowed down (even though it remains fairly high for developing economies) and experts don't know yet if India is going to take over such a pace, but if not, income inequality might rise again since it won't be carried by the economic growth of the two Asian giants anymore. Sala-i-Martin (2002) also states that the future income inequality gap is truly worrying for the African continent: *“Unless Africa starts growing in the near future, we project that income inequalities will start rising again. If Africa does not start growing, then China, India, the OECD, and the rest of middle-income and rich countries diverge away from it, and global inequality will rise. Thus, the aggregate GDP growth of the African continent should be the priority of anyone concerned with increasing global income inequality”*.

3.2.2 Capitalism and free market.

Nowadays, capitalism is the essence of economic markets in a majority of countries. Capitalism can be defined as an economic system where individuals are owning the means of wealth production of a country in order to maximize profit, whereas state is here to provide a global framework (degree of freedom of the market, social and economic policies ...) as well as regulations and interventions if necessary. This economic system is determining the prices of goods and services (and also of wages) according to the competition level on the market, the demand etc... Capitalism has been facing criticisms from an increasing number of parties (professors, journalists, politics, individuals) pointing out that the theory implied more economic freedom to companies, markets and individuals, and therefore making every parties better-off, but turned out to be a failure resulting in an increasing income inequality and social instability. Income inequality indeed increased during the

past few years of capitalism, but can this economic system be blamed for the situation we are now in?

Muller (2013) asserts that inequality itself is a “inevitable product of capitalist activity” since this economic system is promoting equality of opportunities, and some people are simply better than others when it comes to seize the development and innovation opportunities that capitalism creates. Pettinger (2014) also explains inequality as an “*essential ingredient of capitalism*” through two motives: Profit motive and work incentive. Profit driven economy is the essence of capitalism and therefore individuals are motivated by it, that is why people are invited to make studies, encourage to start businesses... because it is linked with the motive of earning superior income. Entrepreneurship is a good example of that: capitalism having decreased the governments’ regulations on the market, creating a business has become, in theory, as easy as ever. Hundreds of thousands of businesses are creating each year, and the main reason of that would be that, even though it might be not their primary motives, these individuals aspire to earn higher incomes. Entrepreneurship is a risky venture, the U.S. Bureau of Labor Statistics is addressing that about 20% of U.S. small businesses fail in their first year, and about 50% of them fail in their fifth year. In case of success this endeavour could be rewarded with consequential profits, which will lead to income inequality. Pettinger is therefore establishing that “*the potential of reward makes inequality an essential ingredient of capitalism*”. Working incentive can be explained as follow: inequality is necessary to motivate individuals to learn new skills, provide more efficiency in their work etc. In a society where every job would receive the same wage, regardless of the skill level required or the performance of an employee, this work incentive would not exist. We also have to keep in mind that wages (for the most part) are fixed by the market and therefore by the firms. An important company would be willing to pay someone more as a recognition of his skills and efforts. Once again this is leading to income inequality, but it is a necessary condition to work incentive.

Caccavello (2019) deploras the backlash of academic professors, journalists... toward capitalism and the effects it had. Caccavello (2019) accentuates that since the late 18th / early 19th century, capitalism is a “story of a wonderful success”: indeed, as explained earlier, our society as became as rich as ever before and it is related to liberalization of markets, economic and social freedom of individuals etc. He also states that the archetype where governments should frame the economic market and have a stronger regulation power on it is the principal reason of our social and

economic problems. *“Government is no God at all and, as modern history tells us, the essence of government is to be selfish”*, the government is comprehensively providing for itself first, that’s why it should not be able to control an economic market, since government when doing it, is *“too much often, doing more harm than good to the poor and to the middle class”*. Capitalism and free markets therefore appear as the *“best tools”* at our disposal to fight economic inequality and poverty.

Hodgson (2016) argues that capitalism does generate more inequality, especially through what is called inequalities of inheritance. Inequalities of inheritance is the difference of wealth, assets etc. between two individuals at their birth. It can also be linked to what we call inequalities of class (social classes), where birth matters more than individuals’ talents or skills. Hodgson (2016) claims that these inequalities of inheritance are “affording” more opportunities to generate additional profits and gives the example where employees cannot put forth their working capacity and skills in order to get a bank loan, whereas inherited individuals can *“use their property to make profits, and as collateral to borrow money, invest and make still more money”*. According to Hodgson (2016), the freedom of workers engendered by capitalism turned labour assets into an insufficient collateral, he consequently states that *“at least in this respect, capital and labour do not meet on a level playing field, this asymmetry is a major driver of inequality”* and that *“the process is cumulative: inequalities of wealth often lead to differences in education, economic power, and further inequalities in income”*. This inequalities of inheritance is depicting, according to Hodgson, the main inequality of income revenue, where heirs are using their relatives’ wealth to build different streams of income, whereas regular individuals only start with one stream of income, the one they get from their work(s).) has been referring to these inequalities of inheritance as “Patrimonial capitalism”: wealth is handed down from one generation to another. Piketty (2014) points out that a lot of countries are turning into patrimonial societies and that this inherited wealth is playing a major role in controlling the opportunities and future incomes of individuals. That transmission of capital is nowadays the easiest path to acquire a significant fortune, whereas in a former period the “do it yourself” was the standard way to achieve success, Piketty (2014) hence fears that inheritance become once again the common path since *“entrepreneur always tends to turn into a rentier”*. Noah (2017) is demonstrating Piketty’s above sentence by giving the example of Bill Gates, that retired from Microsoft at 45 years old in order to take care of his charitable foundation, leaning therefore on its engendered capitals (stocks, properties etc.), and J. Paul Getty, that was the world’s richest man when Bill Gates was born, that remained president of its company until he passed away at the age of 83. Patrimonial capitalism consequently

put ahead capital ownership over income, and capital being accumulated across generations Noah (2017) is making the statement that “*the dead are wealthier than the living*”.

We have discussed that capitalism is by definition unequal since it lays on economic power of individuals, and that you will always have one person making better-off from this economic situation. This is also what we started to describe in our first part of the thesis with the example of Mankiw (2013) where he illustrated that a voluntary exchange, meaning that both seller and buyer are willing to make that transaction because it makes them both better-off, can lead inescapably to inequality if you have one seller for a given good or service and numerous buyers interested in it. To sum-up on that idea, capitalism surely creates inequality, but the relevance of that statement is debatable and often argued between economists and politics: capitalism increased world’s wealth as never before, promoted innovation, gave every individuals more economic freedom and hosted surging technological progresses, should an economic system that showed way more success than any others be changed because we care more about straight equality rather than overall economic well-being ?

3.2.3 Skill-biased technological change & Education

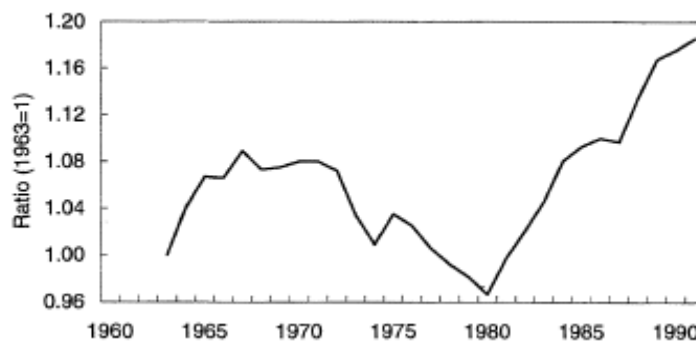
Since the industrial revolution, economists pointed out technological changes as a possible and highly probable cause of rising income inequality. In the late 20th century, a number of studies (principally focused on the United States) analysed the rise of income inequality and many of them confirmed the positive impact that technological changes have on income inequality. A report of the U.S. Bureau of Labour Statistics in 1999 expressed that these technological changes led to “lower demand for manual dexterity, physical strength for materials handling, and traditional craftsmanship”, excluding a part of the manual workers from the economy as machines being more efficient and cheaper on the long run. The income inequality gap starting to widen even more in the 1980s, the timing was perfect to address the issue with the development and spread of microcomputers and the relative utilization of skilled workers. Bound & Johnson (1989) came to the conclusion that technological changes changed production processes significantly and therefore modified the wage structure. The authors use the adoption of computers in 1980s by the majority of the economic industry as an example and were supposing that more educated workers were presumably better to adapt to that different production process than lower educated ones. This supposition will be continued by Krueger (1993) where his findings will show that workers with high schooling degrees

tend to more use computers at work than their peers. Autor, Katz and Krueger (1997) conducted a survey in order to evaluate the percentage of workers using a computer at work, the findings showed that computer usage at work increased from 25 % in 1984 to 47 % in 1993. This element can be one explanation of the demand shift toward high-skilled workers: firms needing individuals able to exploit the data furnished by information technologies in order to “*tailor more closely products and services to customers’ specific needs and to develop new products*”. Bresnahan (1997) also put ahead that computer business systems and microprocessor-based technologies enabled firms to the routinization/automation of simple and repetitive tasks, easing drastically the production process at the time and letting few spots available for the former workers that were actually dealing with these tasks. The findings of Bresnahan (1997) and the ones from Autor et al. (1997) help us to make a link between the expansion of computer usage at work and the “*employment shares of managers, professionals and other highly educated workers, and with decreased employment shares of clericals, production workers, and less educated workers*” (Katz and Autor (1998)).

These technological changes have shifted the demand curve of labour, forcing the firms to look in perpetuum for high-skilled workers. As Johnson (1997) explained, this harsh shift has therefore also increased the earning inequality gap between high-skilled and low-skilled workers, following the basic law of demand and supply, few high-skilled individuals lead to increasing wages for that segment. That burst of new technology causing the above-mentioned cycle is what we now call the Skill-Biased Technological Change hypothesis. This SBTC hypothesis has been vastly covered in the 1990. Doms, Dunne and Troske (1997) analysed how different variables (such as wages and workforce education) differ with the adoption of new technologies in factories. Their results exhibited that plants that “*use a large number of new technologies employ more educated workers, employ relatively more managers, professionals, and precision-craft workers, and pay higher wages*”, but be that as it may, the study revealed that no correlation was proved between skill upgrading and adoption of new technologies, suggesting that plants favouring new technologies were hiring higher-skilled workers regardless of the adaption or not of new technologies in the company. That behaviour can be understood as a way for businesses to adopt these new technologies in the future without to worry about the ability of their workforce to adapt to it afterward. Dunne & Schmitz (1995) also figured out in their research that workers in establishments that are classified as highly driven by new technologies earn a premium of 16% as compared to those in plants that are not. That earning gap between skilled and unskilled workers is referred as skill premium and is defined in

Krusell, Ohanian, Ríos-Rull & Violante (2000) as the wage of skilled labour relative to that of unskilled labour. Graph 7 below is depicting the evolution of that skill premium in the United States from 1963 to 1992.

Graph 7: The skill premium: Skilled vs Unskilled wages per hour (normalized with 1963=1)

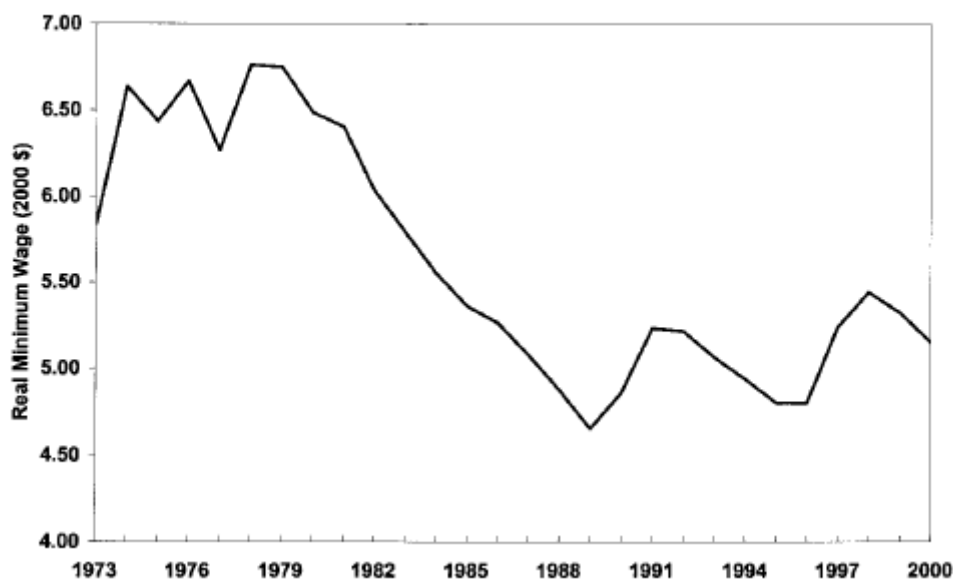


Source: U.S. Department of Commerce's Current Population Survey (CPS) - 2000.

From this graph, we can distinguish 3 distinct patterns: a first growth of the skill premium from the 1960s, a downturn in 1970s and a significant surge in 1980s. Over the 29 years period observed, the skill premium rose of 18%. In their research paper, Krusell et al. (2010) explains in part that growth of skill premium by the capital-skill complementarity, defined as the “*elasticity of substitution between capital equipment and unskilled-labour is higher than that between capital equipment and skilled-labour*”. That capital-skill complementarity means that the supply of technological equipment increases the marginal product of skilled-labour but decreases the marginal product of unskilled-labour. That supply of technology has been developing at about twice the rate of either capital structures or consumption over the post-war period, and its expansion rate has sped up since the late 1970s. The author’s findings pointed out that this capital-skill complementarity can account for most of the variations in the skill premium over the last 30 years, implying that “*the development of better and cheaper capital equipment benefits the economy as a whole, our results show how this development drives down the wages of unskilled workers and has implications for the efficacy of alternative public policies*”. SBTC changed the economic game: skilled-workers benefited from the boost of productivity that these new technologies provided, and unskilled-workers kept their productivity steady. In a society where part of workers is paid according to their productivity, these changes in productivity inevitably led to disparity in the relative wages between workers.

Weiss (2004) challenged that above statement by mentioning that relative wages in a multi-sector economy does not rely solely on productivity but also on goods prices. Therefore, a product A that does not benefit amply from technological progress will see its relative price rising compared to product B that does benefit from these progresses and see its production cost decreasing. Weiss (2004) therefore explains in his paper that if the production of these low-skilled goods (i.e. product A) requires low-skilled workers, the said workers will benefit from the increasing relative price of the goods in form of higher wages. Card & DiNardo (2002) also confronts that SBTC fails to explain some part of the evolution of income inequality. The authors considered SBTC has a “*plausible explanation*” of rising inequality in the 1990s, especially because the timing was perfect to link them together, but that economists in their research forgot more mundane factors that can explain that phenomenon. Card & DiNardo (2002) reveals that the fall in the real value of minimum wage could be a primary candidate to explain that increasing gap. Graph 8 below depicts the evolution of the real minimum wage in the U.S. from 1973 to 2000.

Graph 8: Real minimum wage, 1973 - 2000.

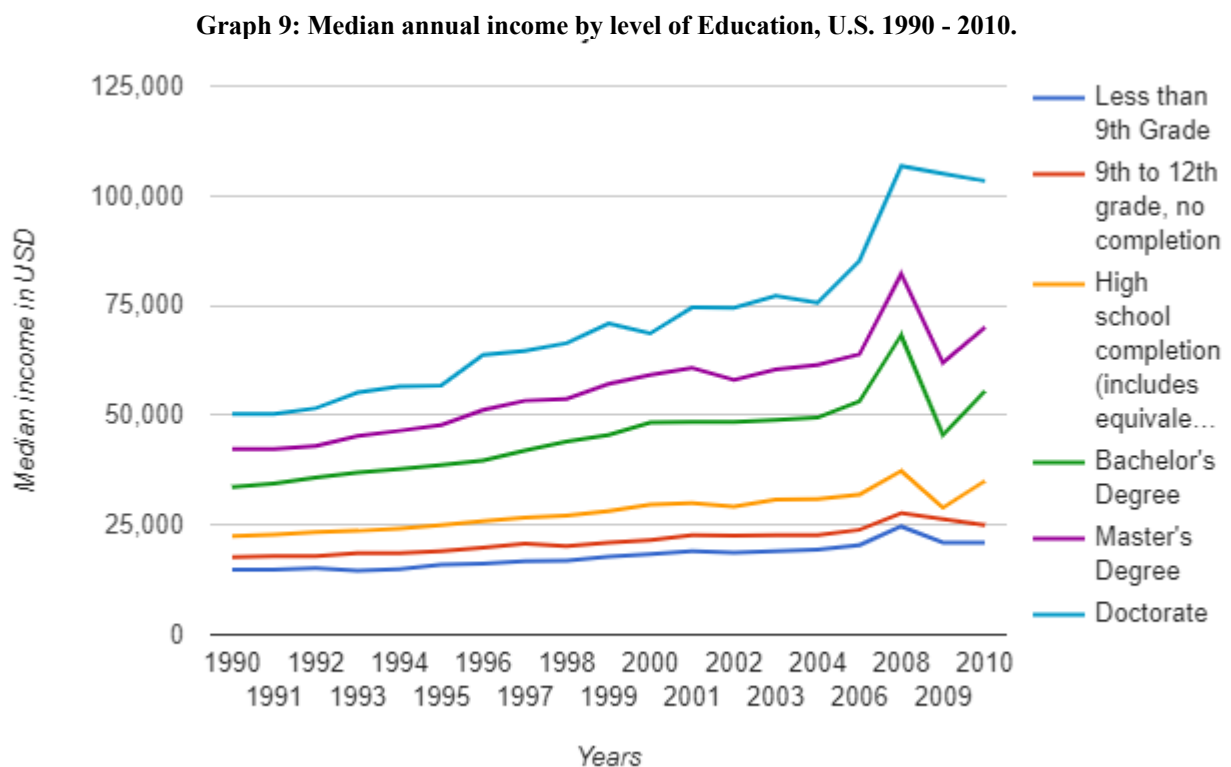


Source: U.S. Department of Commerce's Current Population Survey and OGR Data - 2000.

Card & DiNardo (2002) note that from 1979 to 1984, the real minimum wage fall from 33% resulting in a “*steep decline in the influence of the minimum wage on the low-wage labour market.*” The authors suspects that this decrease can be a predominant reason of that increasing earning inequality, even though development from other factors could also explain that change of wage

structure, in a certain extent, and that the “*narrow focus on technology diverted our attention away*” from analysing these developments.

When opposing low-skilled to high-skilled workers, we refer to the difference in educational background two individuals have, since high education provide people with more developed abilities and knowledge. SBTC and education are obviously closely related: education allowing individuals to also develop and qualify themselves with those new technologies, it is an interesting resource to bet on since firms do not know yet what new technologies will allow us to do in the future and how it will change their businesses. As explained above, SBTC created a surge of companies’ need for high-skilled workers, putting aside low-skilled ones, it therefore led to an increase of the wages of the high-skilled workers due to the high demand, widening even more the gap between the two categories. Thus, economic return to skill and education plays a role to the rising income inequality we are in. Graph 9 below is disclosing the evolution of median annual income by level of education in the United States.

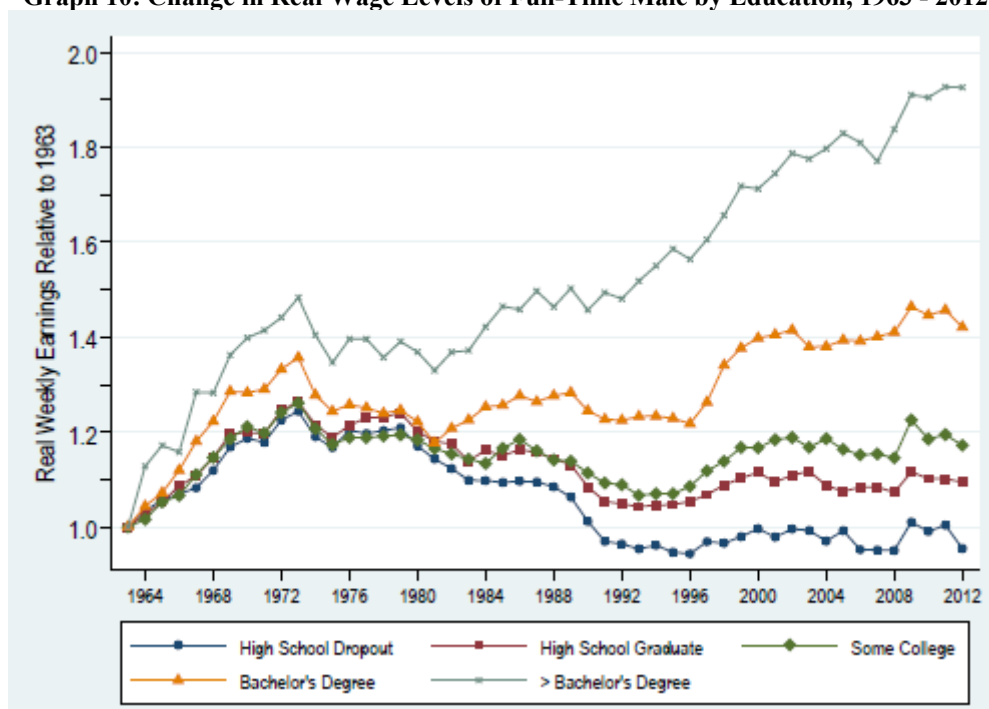


Source: U.S. Dept. of Commerce, Bureau of the Census, Current Population Reports - 2017.

This graph lays out the skill premium we spoke about earlier, we can see that there is a significant difference between the median annual income of bachelor's degree individuals and the one from high school graduated people. This divergence grew slowly during the early 1990s before surging around 2007. We can also note a momentary decrease in the income gap in 2008, most certainly attributed to the financial crisis at that time, more educated workers' income dropping compared to less educated ones remaining more or less steady.

Roser & Nagdy (2020) research highlighted that average skill premium between the relative wages of those with university degree relative and those with high school education in 33 OECD countries observed was around 1.5, meaning that individuals with a university degree earns 50% more than those with high school education. Autor (2014) points out that this skill premium “masks a discouraging truth” where the rising relative earnings of more educated workers does not only comes from the rising real earnings among them, but also because real earnings of less educated workers are falling as shown in graph 10 below.

Graph 10: Change in Real Wage Levels of Full-Time Male by Education, 1963 - 2012

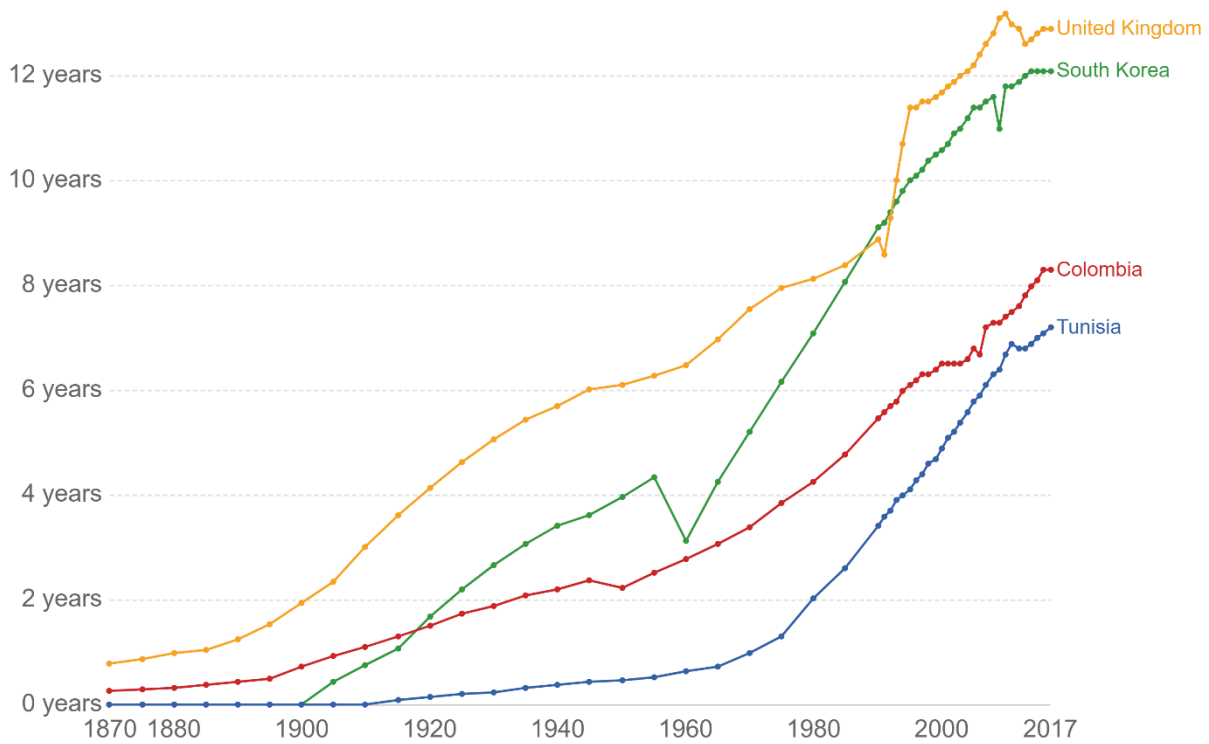


Source: March data of U.S. Department of Commerce's Current Population Survey (CPS) – 2014

Autor (2014) therefore identify between 1980 and 2012 that real hourly earnings of full-time college educated increased from 20% to 56%, whereas at the same time real earnings of high school

or lower educational levels declined considerably: about 22% among high school dropouts and 11% among high school graduates. Maria (2011) stated that *“in a globalized world where information means power, we are witnessing a reorganization of the labor market, consisting in its computerization, thus, in order to successfully cope with an increasingly sophisticated job, certain skills, advanced knowledge and a diploma of higher education in the field are required”* and it is perfectly depicting why we witness such a strong return to education and why individuals are encouraged to invest in their education and personal development to aspire to higher earnings and quality of life. As showed in Appendix 3, education is now clearly becoming an investment, especially in the U.S., where the college fees are enormous. Roser and Ortiz-Ospina (2020) made graph 10 below that is sketching the evolution of the mean years of schooling and illustrating that return to education phenomenon: we can glimpse that the curves are rapidly increasing in the 1980s / 1990s, especially for a developing country like Tunisia that knew during the previous periods a really low level of schooling for its population. The authors made these measurements for a large number of countries and they represented it through a world map. I invite you to check in order to get the bigger picture of the phenomenon.

Graph 11: Mean years of schooling:
Average number of years of total schooling across all education levels, for the population aged 25+.



Source: Lee-Lee (2016), Barro-Lee (2018) and UNDP, HDR (2018)

OurWorldInData.org/global-rise-of-education • CC BY

SBTC changed and will continue to change the modern economy, and to take on these challenges, firms are calling for more high-skilled workers that will turn out to be more efficient utilizing the knowledge and power provided by these new technologies. SBTC (and also globalization) generated a return to education phenomenon in order to fit with this new functioning economy, widening once again the income gap between skilled and unskilled workers.

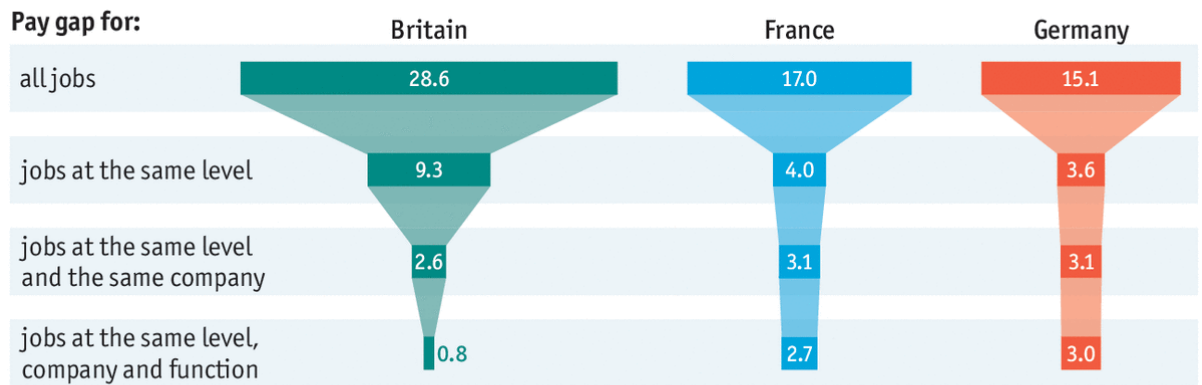
3.2.4 Gender

Gender pay gap inequality is in our modern days one of politics' favourite hobbyhorse. The argument of women earnings less than men for a same job has been streamed over and over for years now and is still the leading figure of many social movements. In France for example, medias assert that women earn around 24% less than men in 2018, a gap that only slightly reduced since 1995 where the number was up to 27%. In the United States, the Institute for Women's Policy Research (IWPR) affirmed that "In 2015, female full-time workers made only 78 cents for every dollar earned by men, a gender wage gap of 22 percent", an argument that U.S. former president Barack Obama rehearsed

on April 2016 during the Equal Pay Day. These numbers are modestly varying between medias and countries, but the message steered remains the same and is repeated by a large number of individuals. Yet, how accurate are these numbers?

In 2017, Korn Ferry Hay Group set out the biggest and the more detailed research on the matter: using data for more than “20 million employees in more than 110 countries and across 25,000 organizations”, and the results of that gender pay gap turned out to be drastically different from the one broadcasted by medias and politics.

Figure 1: Pay gap between women and men in sampled countries, 2016, % of men's full-time wages



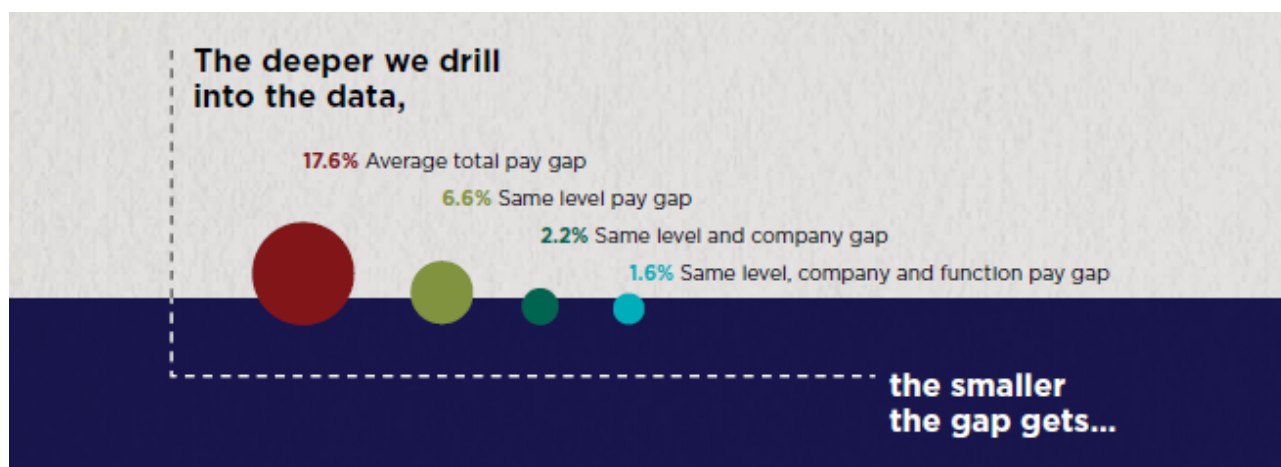
Source: Korn Ferry

*Full-time pay

Figure 1 above is displaying some of the results of Korn Ferry’s research and we can see that the pay gap between men and women is highly decreasing when you take into account the job level of the individuals, the company they are in and the function they are attributed. For instance, when digging into data Britain gender pay gap switch from 28.6% to 0.8%, a difference of 27.8 points.

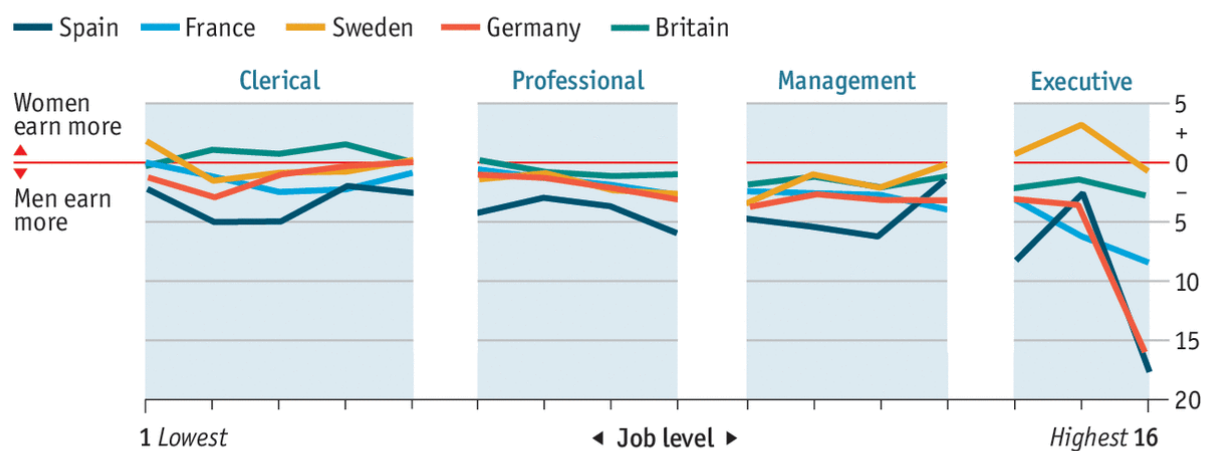
Ben Frost, Korn Ferry's global spokesperson on the gender pay gap, declared that “*the deeper we drilled into the data, the smaller the pay gap became. And when we compared like with like, it became so small as to virtually disappear.*” as shown in figure 2 below.

Figure 2: Average pay gap between women and men, 2016, % of men's full-time wages



The “24% less” or “79 cents for every dollar” put ahead by medias in reality comes from the simple difference between the average of all male wages in one hand versus the average of all woman wages on the other, which is obviously not a relevant economic calculation since we do not take into consideration full-time & part-time jobs, sector of activity, experience... and all the other variables explained by Ben Frost. Global average comparison between genders does not make sense because men are largely dominating highly paid functions: for example, the 2019 fortune 500 companies count only 33 women as CEO (which is significantly increasing compared to previous years, +37.5%, but is sadly still low), we therefore have biased calculations that cannot represent a straight pay gap based on gender. That lack of women at top positions is where the gender pay gap problem truly remains: Ben Frost explains through their “Four Stages of Contribution” framework (Appendix 4 & 5) that women struggle to get pass the second stage in their career development and that is why we end up with an average male vs female gap that important. The issue rather reside on the struggle women are facing in their career development than some discrimination in salaries.

Figure 3: Pay gap between women and men, by job level, 2016, % of men's wages



Source: Korn Ferry

*For jobs in same function and organisation

Even though in most cases we can explain that gap, figure 3 above displays the gender pay gap in a sampled of job category and is bringing some interesting data. We can see that for most of the cases, the higher the job level the higher the gender pay gap is. For example, in Britain women are earning more than men for clerical work, but in an executive position, the curve reverses and men are earning more than women. We also note that pay gap is differing a lot among countries: Sweden, which is considered as a very women progressive country, is registering less pay gap differences than its European neighbours and even have executives women payed more than men. On the other hand, Germany, and Spain particularly, kept a pay gap between 0% and 5% for most of job levels, but in the highest positions these countries registered a gap between 15% to 20% in favour of men.

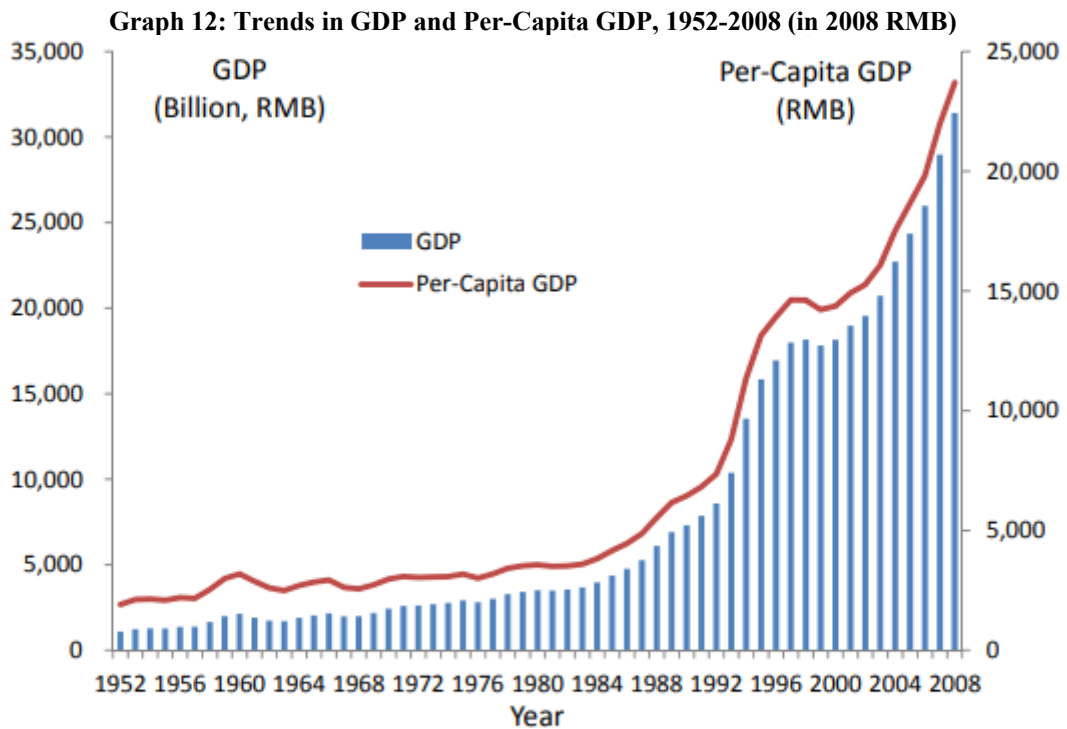
Even though these figures take into consideration jobs in the same function, the same organization and the same job level, salaries are defined by a quantity of complex factors that are not always observable nor quantifiable and that could explain a part of the remaining percentages in Figure 1, 2 and 3. In a report published by the French Labour Minister in November 2015, it is explained that this way to calculate the gender pay gap has limitations since factors as bargaining power with your managers, age, experience on the job level, career interruptions (i.e. maternity leaves), effort at work etc. are crucial factors when determining the wage of an employee and are hard to put numbers on. All these factors could explain most of the remaining percentages, and even though pure discrimination based on gender still could be a variable: when you take the example of Germany and Spain at the executive job level, it is unfortunately way harder to prove it on the remaining percentages observed than on the unreliable 20% / 25% data mentioned at the beginning.

Gender inequality is a thing, but as demonstrated in that part, focusing on a supposed pay gap which is hard to distinguish is not where the real problem relies on. Since the disparity is, in most cases, quite easy explainable by the simple said variables, and is also too much rehashed by a majority, which is not helping women's cause. Gender inequality primarily lays on the difficulty women have to access high responsibility and high payed jobs that has been managed by men since decades and also due by the late emancipation of women in the society. As Ben Frost explained in his report, this is where the focus and work should be in order to eliminate that gender inequality. Things are changing, maybe too slowly, but they are changing, and breaking that glass ceiling blocking women's career development would have a significant impact on gender inequality reduction.

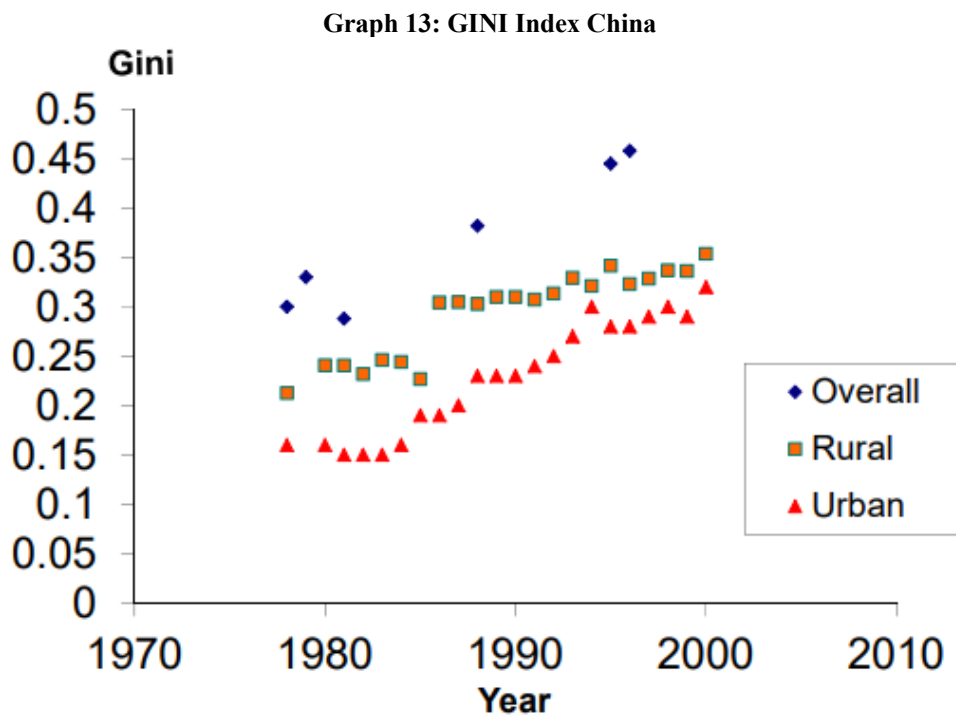
3.3 What are the consequences?

Increasing income inequality relies on numerous factors (wage gaps, unemployment, industry competition etc.) and its consequences are real concerns for the society despite that, for the most part, they understand them quite poorly. Like most of the thing linked to the matter, income inequality consequences are not unanimously shared, and two school of thoughts are put ahead: economists that think increasing income inequality has positive consequences, and others that think that it has negative ones.

When talking about positive consequences of increasing income inequality, economists obviously do not assume that the poorest having not enough to live is a good thing, but that inequality itself is serviceable in order to stimulate overall growth, boost the quality of life for all members of a society and might be purely a necessary part of social headway. We previously used the example of China to talk about the Heckscher-Ohlin theory and globalization, it is also a pretty solid case when we want to demonstrate some of the positive effects of rising inequalities on economic growth. Yu Xie (2010) presented that *“an examination of data reveals clear trends for both economic growth and rising inequality in China over recent decades.”* As depicted in graph 12 & 13 below:



Source: National Bureau of Statistics (2010a, 2010b). Adjustments has been done for the data of 2005-2008, on the basis of the 2nd Economic Census



Source: OECD Report, Han Wenxiu, 2004

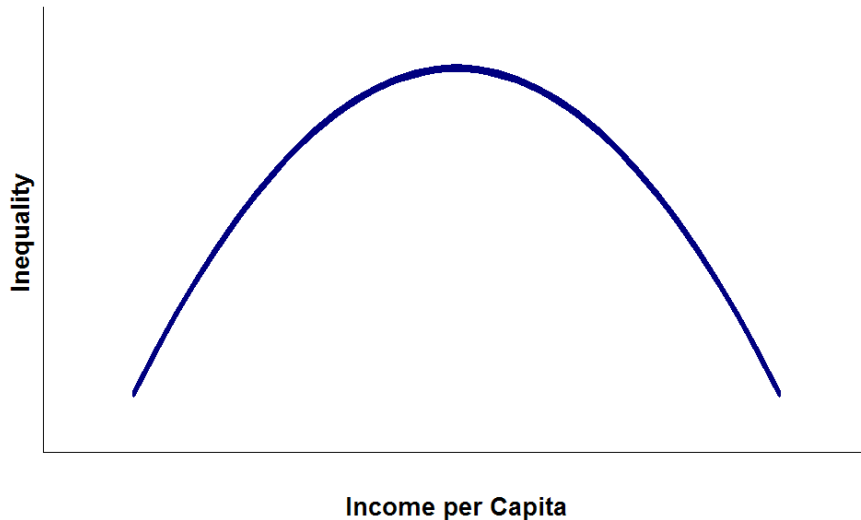
These graphs help us to picture the positive correlation that income inequality and economic growth might have, indeed, in both visual representations we can witness a significant increasing

trend starting in the 1980s. Graph 12 displays the Chinese economic boom since the 1980s with an average growth of 6.7% between the period observed in the graph, whereas Gini Index in Graph 13 has grown from around 0.3 around 1978 to over 0.45 in 2000. More recent data on Chinese Gini Index are now available, and the same correlation can be observed: as China income inequality is decreasing, economic growth is slowing down. Brian Keeley (2015) is explaining that phenomenon of inequality driving growth by the simple fact that “*it allows for entrepreneurs to enjoy the rewards of their risk-taking.*”. To support his say, Keeley (2015) also re-use the example of Mankiw (2013) used earlier in the thesis: “*Imagine a society with perfect economic equality, one day, an entrepreneur comes up with a new product. Everyone in society wants to buy it. They each part with, say, \$100. The transaction is a voluntary exchange, so it must make both the buyer and the seller better off. But because there are many buyers and only one seller, the distribution of economic well-being is now vastly unequal. The new product makes the entrepreneur much richer than everyone else.*”. In the end, the consequences of these income inequalities are positive since both buyers and sellers are better off and that it stimulates other individuals to do the same in order to achieve potential benefits. This inequality process stimulating the economy, it is therefore enhancing the economic growth of the country. Income inequality then becomes more of a political & ethical issue than an economic one.

That increasing income gap often face suggestions of heavy taxations in order to constrain it, but that idea would inevitably dwindle the innovation incentive and would lead to a more than likely decrease in our technological progresses and standards of living. Moreover, Arthur Okun (1975) points out that this redistribution could, at some point, drive a community to exploit its economic resources less efficiently than it could do. Okun (1975) explains that if government was granted a role of reallocation of wealth among rich and poor, it would lead to what he calls a leaky bucket experiment: “*the money must be carried from the rich to the poor in a leaky bucket [...] some of it will simply disappear in transit, so the poor will not receive all the money that is taken from the rich*”. Keeley (2015) additionally put ahead that this accumulation of wealth created individuals able to become a point of supply and investment for the economy, as advanced by John Maynard Keynes (1919) “*If the rich had spent their new wealth on their own enjoyments, the world would long ago have found such a regime intolerable. But like bees they saved and accumulated, not less to the advantage of the whole community because they themselves held narrower ends in prospect.*”. In economic literature, this inevitable increase of inequality caused by economic growth has been

argued by Simon Kuznets (1955) and is now known as the Kuznets Curve presented on figure 4 below.

Figure 4: Kuznets Curve



Source: Wikipedia, 2007

Kuznets (1955) explains that the correlation between income inequality and economic growth is shaped as an inverted U curve. At the early stage of economic development, inequality is rising up significantly till the wealth created is able to decrease those inequalities. That increase can be explained on one hand by the multiplication of investment opportunities that a developing economy provides for the wealthiest and in another by the increasing urbanization coming with it, keeping the wages of those workers pretty low. That phenomenon has been verified by economists and historians in a number of countries. For example, Oliver E. Williamson (1985) supported Kuznets' conjecture by having a look at England's data in the 19th Century and indeed witnessed at first a rise of inequality before a decline. Williamson's data are displayed in figure 5 below.

Figure 5: GINI Index England

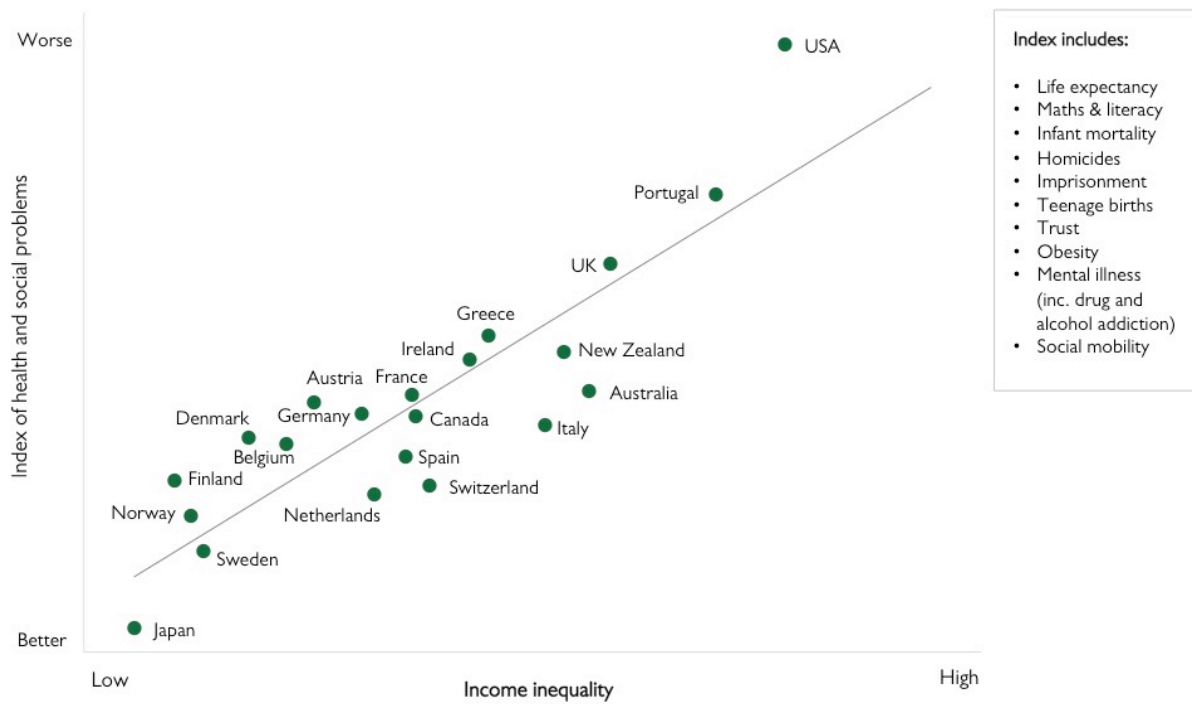
<i>Year</i>	<i>Share of the top 10%</i>	<i>Gini coefficient</i>
1823	47.51	0.400
1830	49.95	0.451
1871	62.29	0.627
1891	57.50	0.550
1901	47.41	0.443
1911	36.43	0.328
1915	36.46	0.333

Source: Williamson's, Deininger and Squire data set, 1985

Figure 5 shows the increase of the GINI index from 1823 to 1871, rising from 0.400 to 0.627, before declining afterward to 0.333 in 1915. 19th Century was England's golden ages, enjoying one of the wealthiest and most powerful economy at the time caused by a huge industrialization of the country (one third of the population was employed in manufacturing in 1870). These findings allowed Williamson (1995) to support Kuznets' (1955) theory, as well as keep digging into the subject. Williamson & Lindert (1980) also find a Kuznets shaped curve when looking at United States data between late 18th and early/middle 19th century, Rofl Dumke (1991) witnessed that the share of top 1% rose from 15.2% to 18.9% from 1896-1900 before declining to 18% on 1911/1913, same happened for France and Sweden according to Acemoglu and Robinson (2000). Of course, Kuznets (1955) is initially describing a statistical correlation that has been observed for what is now a relative long time ago, so its relevance might be nowadays debatable when applied to our modern economies.

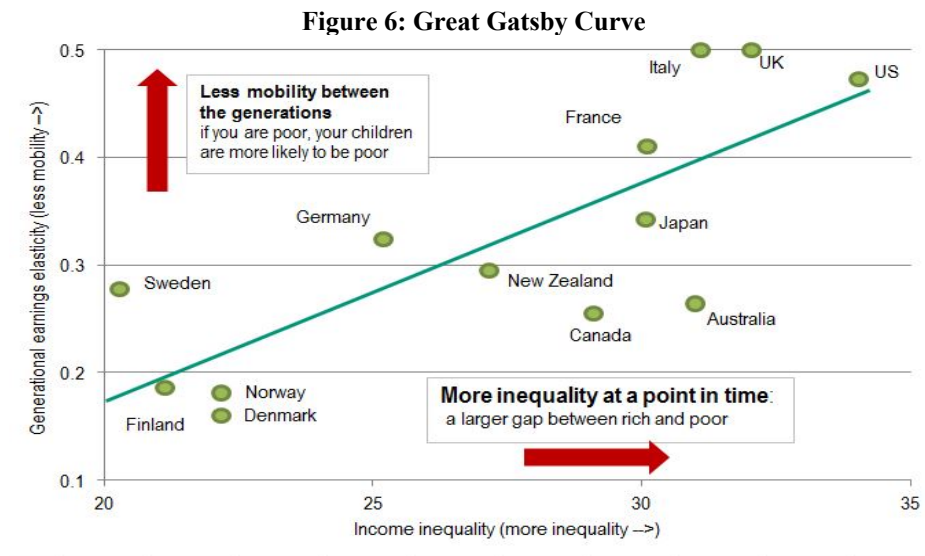
Income inequality consequences do not limit itself to economic aftermath, but also lead to higher social problems. Wilkinson and Pickett (2009) highlighted in their research that for countries classified as more inequal, health and social problems were significantly higher. Graph 13 below is picturing that trend, and we can observe that a highly inequal country such as the United States has a far worse health and social index than in a more equal country like Japan or Sweden.

Graph 13: Relationship between health & social problems and income inequality



Source: Wilkinson & Pickett, The Spirit Level – 2009

This outlined relationship is also depicted by Wilkinson & Pickett (2009) in various other social concerns such as level of trust of individuals, child wellbeing or even recycling. It is also important to note that this above-mentioned relationship is based on income inequality within a society and not to the average income of it. For example, the United States has the highest amount of national income per person despite having the worst index. This widening income gap is bringing ahead a real social erosion that ended up in increasing conflicts, violence banditry. Indeed, the research of Kennedy, Kawachi, Prothrow-stith, Lochner and Gupta (1998), pointed out that *“the growing gap between the rich and poor is mediated through an undermining of social cohesion, or social capital, and that decreased social capital is in turn associated with increased firearm homicide and violent crime”*. I also discussed in a prior part the excessive cost of education in certain countries (particularly in the U.S.). Colleges and universities are rarely state-funded and bank loans to pay those years of study are hardly accessible for the lower class, therefore it creates a low educational access for the poorest, matching with the inequality of opportunity I mentioned in the first part of the thesis. With the issue of educational access comes the problem of low intergenerational mobility, meaning that economic advantages and disadvantages are passed on from generation to generation, as we started to describe previously through Piketty (2014) “Patrimonial capitalism”. That relationship between intergenerational mobility and income inequality is presented in figure 6 and is known as the “Great Gatsby Curve” introduced by Krueger (2012). This curve shows that in most of the cases, the higher the income inequality within a country the lower the likelihood of an upward intergenerational mobility. For example, a person born in a wealthy family is very likely to have high earnings in its adult life. Figure 6 below shows that the relationship between children’s and parent’s income in the U.S. is strong, meaning a higher intergenerational elasticity and therefore a lower income mobility in the country, and reversely for Finland.



Source: Miles Corak “Income Inequality, Equality of Opportunity and Intergenerational Mobility”- 2013

To sum up, increasing income inequalities do have consequences, but the most concerning issues are not the one put ahead in our society. Economic consequences turn out to be debatable, since increasing income inequalities go with increasing income per capita for the whole economy. However, a real concern has to be addressed when it comes to social problems and equality of opportunity. As explained in the early stage of the thesis, we are human beings and therefore inequalities are perceived as bad things that should be abolished, causing inevitably a social erosion coming from the less fortunate social classes. Intergenerational mobility is in some countries building the future generations' career, in the way that if you are already wealthy, you would more than likely stay wealthy and reversely. This previous statement is primarily problematic since, in most of the cases, it blocks individuals coming from poor families, and more in general from poor countries, to get out of the social classes they are born in and climb the ladder. The next part will be dedicated to the analysis of the increasing income inequality in France and in Spain.

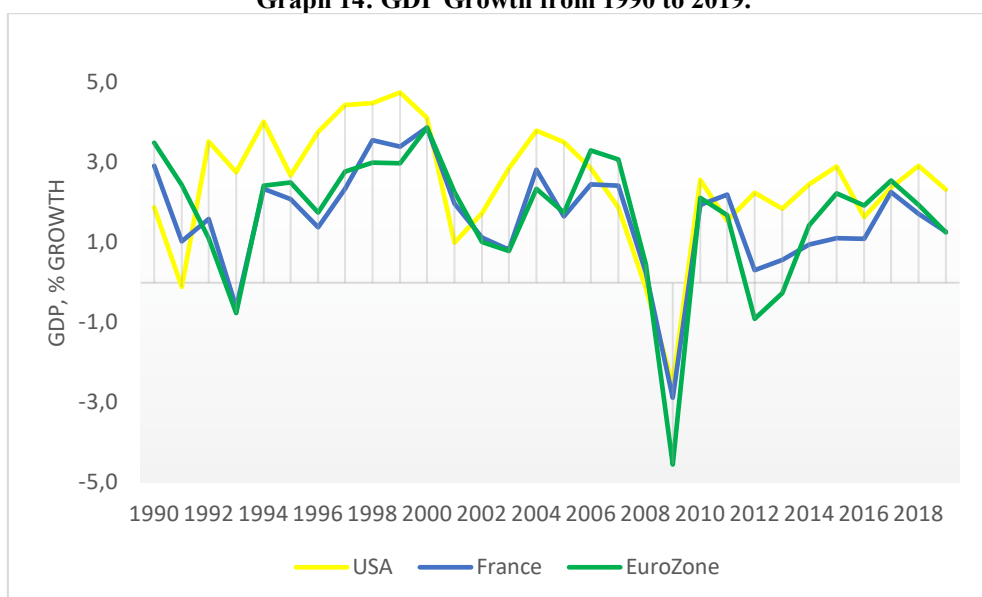
4 Practical Part

4.1 Case study of France.

4.1.1 Overall economic situation.

France is a highly developed country, ranked as the 7th largest economy in 2019, and the 2nd in the European Union behind Germany. Its economic system is a mixed economy: a combination of the free-market principle, meaning that the economic decisions are oriented by the law of supply and demand that are determining the prices of the goods / services, as well as state interventionism and public companies (especially in industries such as railway, electricity, aircraft...).

Graph 14: GDP Growth from 1990 to 2019.

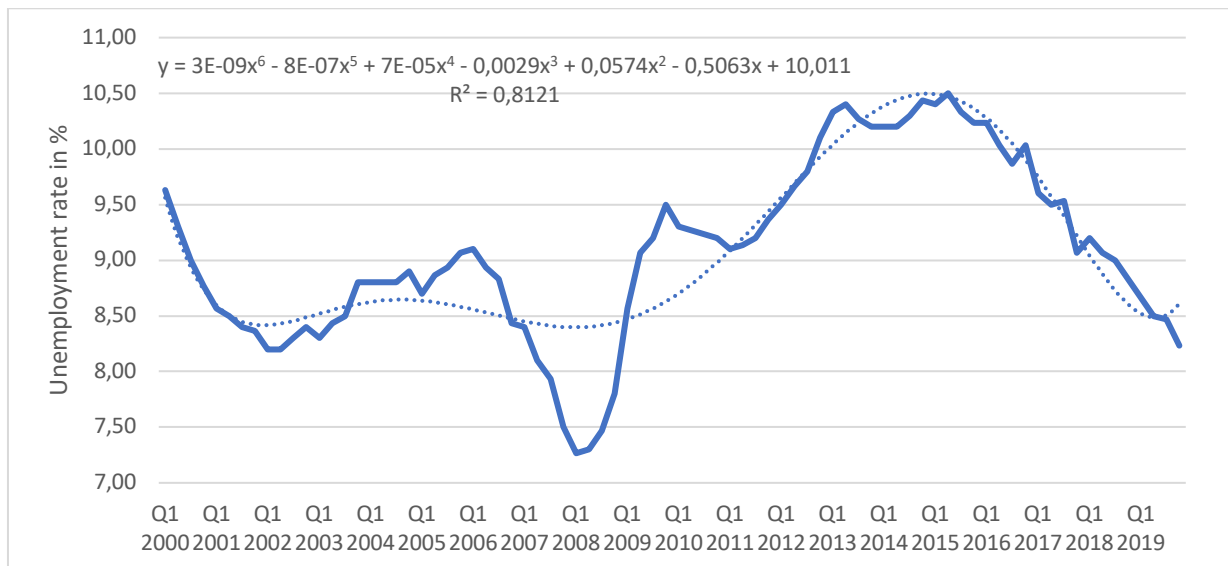


Source: Own work based on OECD database (2019).

The French economy, as many other countries economy, has witnessed a up and down economic growth during the past decades. Graph 14 above displays that evolution. In essence, French economic growth has been one of the strongest in the European Union and remained positive most of the decade, except during 2009 subprime crisis where all the countries economy has been shaken up by that event. However, since 2017 the French economy has been slowing down after gradually recovering from the 2009 crisis, losing about 0.535 points between 2017 (2.25%) and 2018 (1.725%) and 0.425 points between 2018 (1.725%) and 2019 (1.3%). This downward trend can be explained by two major elements: the declining amounts of exported goods and services, and the social unrests

disturbing the country. Indeed, France’s exportations has been significantly reduced: between 2018 and 2019, exportation growth lost 1 point, falling from 3.3% to 2.3%. The reason behind such a loss is that France’s main trading partners such as Germany, Belgium, Italy, or Spain are all witnessing a similar slowdown in term of economic growth, making them less inclined to import French products and therefore weighing on the French economy. Moreover, latest social unrest movement in France did not help the country balancing that shortfall. In 2018, some French citizens started the yellow vests campaign, a social movement that originally aimed to protest the rising prices of fuel and the government’s new tax reform. That movement, which is still going on today, consisted of street demonstrations as well as blocking the roads and fuel depots. It goes without saying that these events drastically paralyzed the country: many shops had to close to avoid being robbed during those demonstrations, various riots involving citizens and the police engendered a tense national climate and economic activities have been slowed down both inside and outside the country. As outlined by the OECD in his 2019 report, those social movements have had a little impact on 2018, despite recording a loss of two billion euros by mid-December (the movement started in October), but the persistence of those social unrests in 2019 have weighed way more on the French economy than the previous year, due notably to the uncertainty and tense climate it brought.

Graph 15: Unemployment rate (%) in France



Source: Own work based on Eurostat (2020).

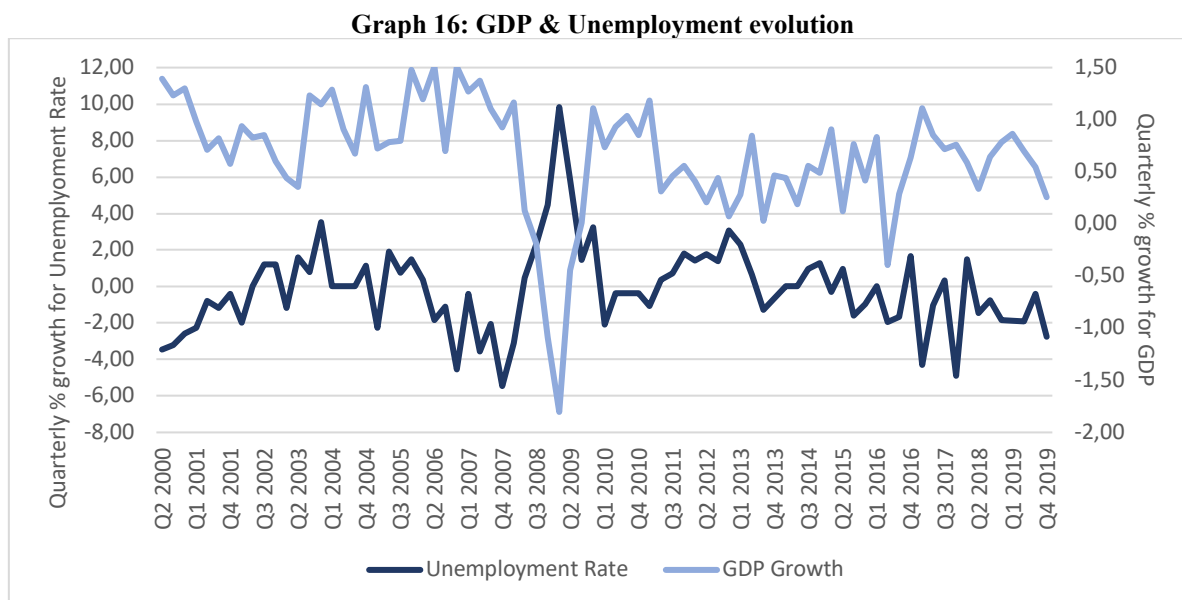
Graph 15 above displays the polynomial trend of degree six $y = 3E-09x^6 - 8E-07x^5 + 7E-05x^4 - 0,0029x^3 + 0,0574x^2 - 0,5063x + 10,011$. The polynomial trend is the one fitting the model the best

due to largely oscillating values. Furthermore, a coefficient of determination (or also called “R²”) is used to analyse the potential discrepancies between the expected and observed data of the model and evaluate its goodness of fit. The value of that coefficient fluctuates between zero and one, one meaning that the regression line perfectly fits the data, and reversely. In our case, the coefficient of determination is equal to 0.8121, which means that 81.21% of the French unemployment rate can be explained by our model.

Over the years, France’s unemployment rate has remained one of the highest among OECD countries. In 2018, 9.2% of the population was unemployed, compared to an average of 5.29% in the other OECD countries. However, during the period 2006–2008, a serious decline in unemployment happened. This declivity can be explained by a particularly dynamic labour market at that time in France, where, carried by a stable economic growth, 275,000 new jobs have been created (mainly in the tertiary sector), before the financial crisis unfortunately cut short that downward trend. Be that as it may, the country has since struggled to keep a low unemployment rate as it was in the 1980s, partly due to the change in labour demand that i explained in the first part of the thesis, making low-skilled workers but also elderly and youngsters the categories the most hit by unemployment (The unemployment rate in the 15-24 age group reached 24% in 2013). Indeed, too many workers have skills that do not match nowadays labour market needs and unequal access to training has made difficult the professional integration of the youth. Furthermore, the French unemployment rate represents an even bigger economic concern for the country when we look at the number of long-term unemployed people, which is defined as an individual without any job during twelve consecutives months. In 2018, those long-term unemployed people represented 40.41% of the unemployed French workers, against 28.97% on average for the other OECD countries.

Despite this number decreasing significantly compared to 2017 (44.03%), it does not point out any sign of downward trend, and as Baudchon (2015) highlighted, the situation is even more alarming when we know that those numbers were around 35% in 2009. In essence, France, more than any other OECD countries, is struggling to get back to its unemployment decrease pace they had before the 2009 crisis, and now the country also have to deal with the increasing average duration of unemployment, that went from 13.2 months in 2010 to 15.5 months in 2017. One solution to that problem would be the restart of the French economy. Indeed, it is easy to assume that economic growth is benefiting employment in a country, and as graph 16 is displaying below, that correlation

is visible. That graph is transposing the percentage growth of both unemployment and GDP compared to previous quarters (not all shown in the graph) and we can see that the trends, although less marked for GDP, have similar traits.

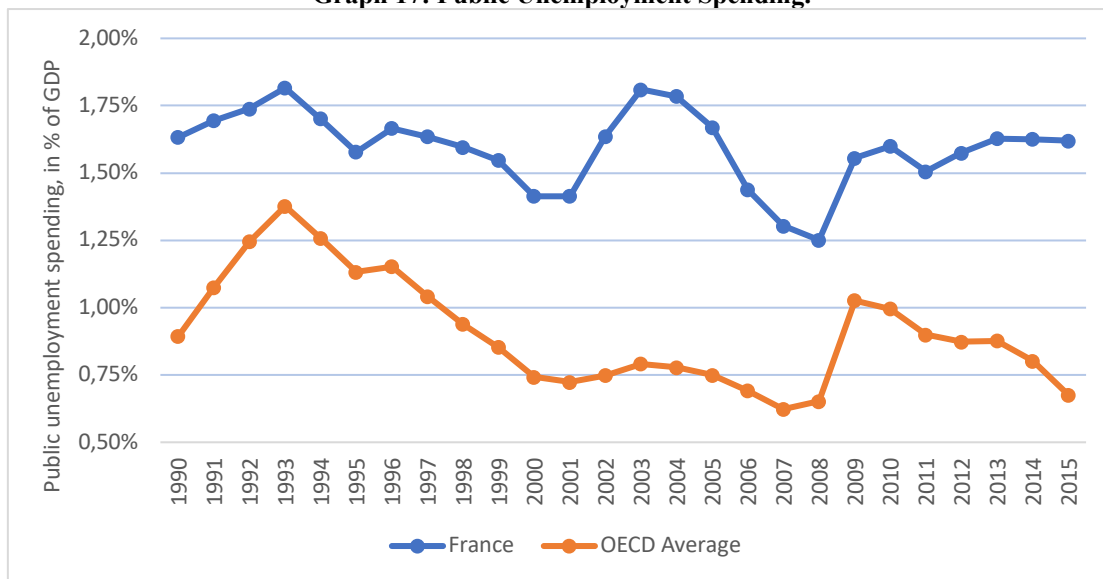


Source: Own work based on Eurostat data (2020).

The main correlation observable on the above-mentioned graph is undoubtedly the one during the subprime crisis in 2008-2009. Indeed, on the fourth quarter of 2008 and the first quarter of 2009, France’s GDP growth has decreased of respectively -1.09% and -1.80%, whereas the unemployment rate of the country has increased drastically with a growth of 4.46% and 9.83%. Similar correlations can be observed during the past two decades, although nuanced. For example, in 2003, when the deterioration of the international climate caused by the tensions in the Middle East and the starting war in Iraq led to a slow GDP growth of 0.35% at the second quarter of 2003, resulting in an increasing unemployment rate of 1.60% that had worsened to 3.53% by the end of the year. In the context of an enhancing GDP growth benefiting the employment rate of the country, France would be winning twice on the matter as the country’s social system is known as being one of the most generous in the world, whereas it is a matter of social security or unemployment allowances. Therefore, this above-mentioned elongation of the unemployment period of French workers is weighing on the country economy. Graph 17 below is displaying the evolution of the public unemployment spending, and as data provided by the OECD shows, the fluctuations presented in this graph are matching the unemployment rate fluctuations presented in graph 15. OECD countries and

France are following a similar trend in term of those spending, nevertheless, France allocates way more resources in unemployment allowances than the majority of the other OECD countries.

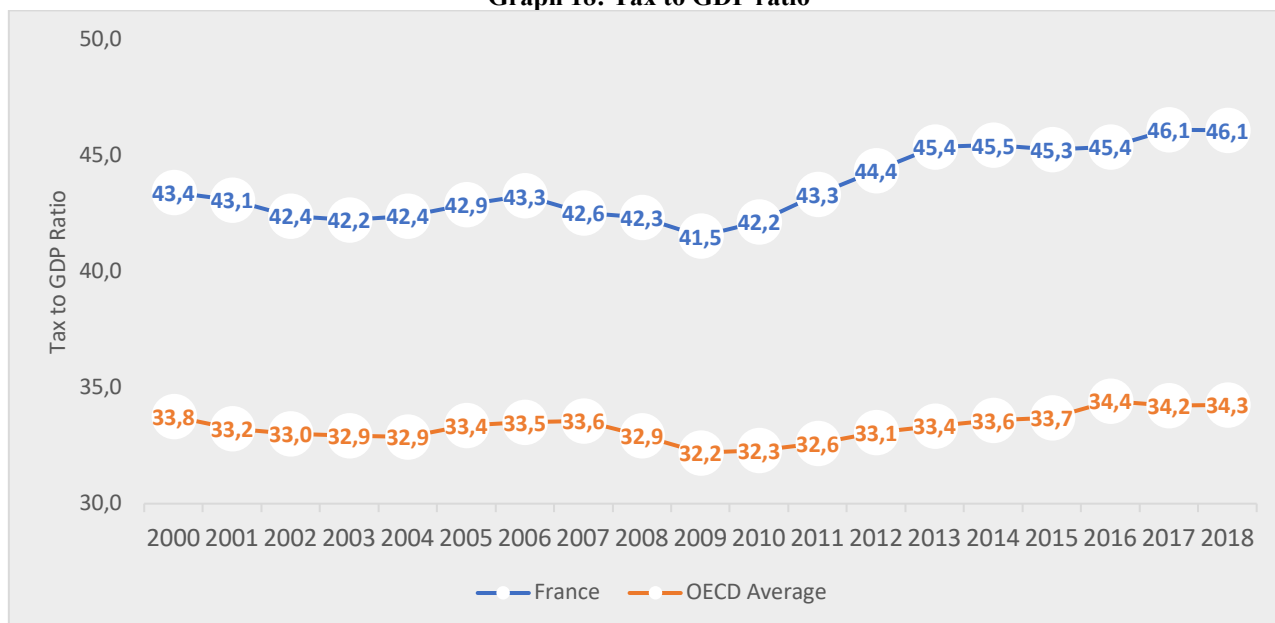
Graph 17: Public Unemployment Spending.



Source: Own work based on OECD Public unemployment spending (2020).

As example, in 2015, France’s public unemployment spending were representing 1.6% of the country’s GDP, compared to 0.68% in average for the other OECD countries. France is the 4th highest ranked in term of unemployment spending among the OECD countries, behind Belgium, Finland, and Spain. On the other hand, countries such as United-Kingdom or the United states are spending respectively 0.17% and 0.19% on the matter and are among the less generous countries. The significant amount of unemployed French workers, added to longest unemployment periods the country is witnessing, represents a considerable economic load that the government has to finance.

Graph 18: Tax to GDP ratio



Source: Own work based on OECD Revenue statistic, 2019.

To finance this social system, France relies a lot on tax revenue. As shown in graph 18 above, French taxes represents 46.1% of its growth domestic product, ranking the country first out of thirty-six OECD countries in terms of the tax-to-GDP ratio in 2018, whereas the OECD average is located at 34.3%. That heavy tax burden carried by the French population is explained by the high amount of social services the state provides: healthcare, unemployment, schools, infrastructures etc.

The French healthcare system is one of the best in the world, in 2017 the country spent 11.3% of its GDP toward it, whereas the OECD average was located around 8.8% of GDP. The healthcare system is financed through social security contributions which represents 36% of the tax revenue (compared to 26% in average for the other OECD countries) and 16.8% of the GDP, ranking France as first in term of social security contributions behind the Czech Republic (15% of GDP) and Austria (14.6% of GDP). The French state budget and social services are financed by a numerous number of taxes, but in average these taxes and social security contributions were representing in 2018 36% of the French people gross income, as picture on graph 19 below.

Graph 19: Tax and Social Security Contributions, as % of Gross Income.



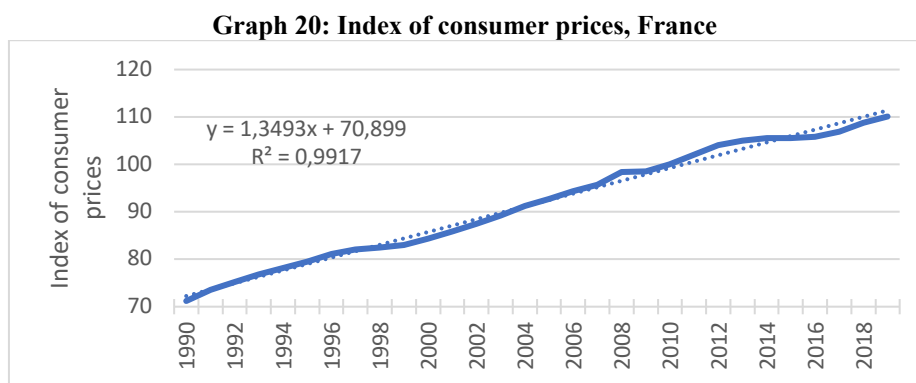
Source: Own work based on Eurostat data (2020).

The tax structure of a country relies heavily on the political party leading it: every party represents different school of thoughts, different ways of solving a country's problems etc. In our case this is what we call the political economy of taxation, and France is a pretty good illustration of that phenomenon. At first glance, we can see on graph 19 a real surge in term of tax burden has arisen between 2010 and 2014, increasing from around 33% to almost 36% in just a few years. Indeed, during that period, not less than forty-four new taxes have been put in place in the country, with a peak of fifteen new taxes created in the year 2012, representing an average of around nine new taxes per year. In comparison, not any other EU countries have set up more than three taxes per year, ranking France in 2013 as the second country among the OECD's with the highest fiscal pressure, behind Denmark.

That heavy taxation increase happened between the two presidential mandates of Nicolas Sarkozy, representing the Republican Party from 2007 to 2012, and François Hollande that represented the Socialist Party from 2012 to 2017. Between 2007 and 2012, we observe that at first the tax burden decreased a little bit and it can be explained by the lowering in 2007 of the tax shield (overall taxable revenue of French people) from 71% to 50%, following Nicolas Sarkozy's moto during the presidential campaign of "Working more to earn more". That measure aimed to encourage labour and to reduce fiscal evasion in France, however, it has been quickly gave up and deleted four years later by that same government due to its "imperfections" and the criticisms toward it coming from the other political parties, accusing that tax shield to be a "gift to the wealthiest", which explains why the tax burden increased in 2011.

In 2012, the Socialist Party comes at power and several measures are put in place, such as a two-year tax freeze (income taxes are no longer revised according to inflation during that period), a new taxation bracket at 45%, the increase of the VAT to 20%, the abolition of tax-free extra hours, a short introduction of an income “supertax” of 75% etc. participated to that soaring tax burden. As well as tax burden, standards of living have also been increasing in France as depicted by the index of consumer prices presented in graph 20.

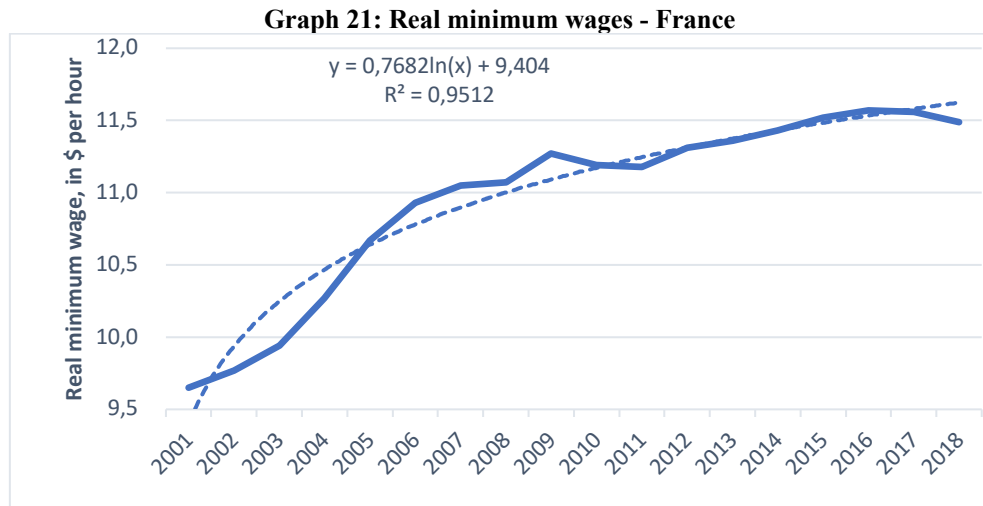
The consumer price index (CPI) is a measurement tool used to track the changes in pricing for most household goods and services used by the large majority of the population and is used to report inflation or deflation. Since CPI is used to track the above-mentioned changes, the linear trend materialized in Graph 20 displays the equation $y = 1.3493x + 70.899$. Linear trend fits best the future CPI estimations since values have been steadily increasing following the past decades. In our case, R^2 is equal to 0.9917 which means that that 99.17% of the changes in CPI can be explained by that model and additionally that this growth should follow the same path in the upcoming years. In France, the consumer price index has known a steady increase since the 2000s, the main surge being in 2008 where the CPI increased from 95.7 to 98.4 that can be explained by the unusual inflation rate of 3.16% during this year caused by the rising oil and food prices.



Source: Own work based on Eurostat data (2020).

To maintain a healthy economy, it is crucial that individuals’ income follows the pace CPI is having, otherwise on the long run, it increases your cost of living and eat away the standard of living you used to have. Fortunately, the prices increase has been slight, and the country has seen, at the same time, its real minimum wage increasing too, as demonstrated in graph 20. The real wage is defined as “the minimum wage divided by the price level (CPI), not by the interaction between labour supply and demand”. Since minimum wages fixed by the government are nominal, it is important

that its adjustment follows the path inflation is taking: if prices increase due to inflation whereas the minimum wage stay the same, it results in a declining real minimum wage.

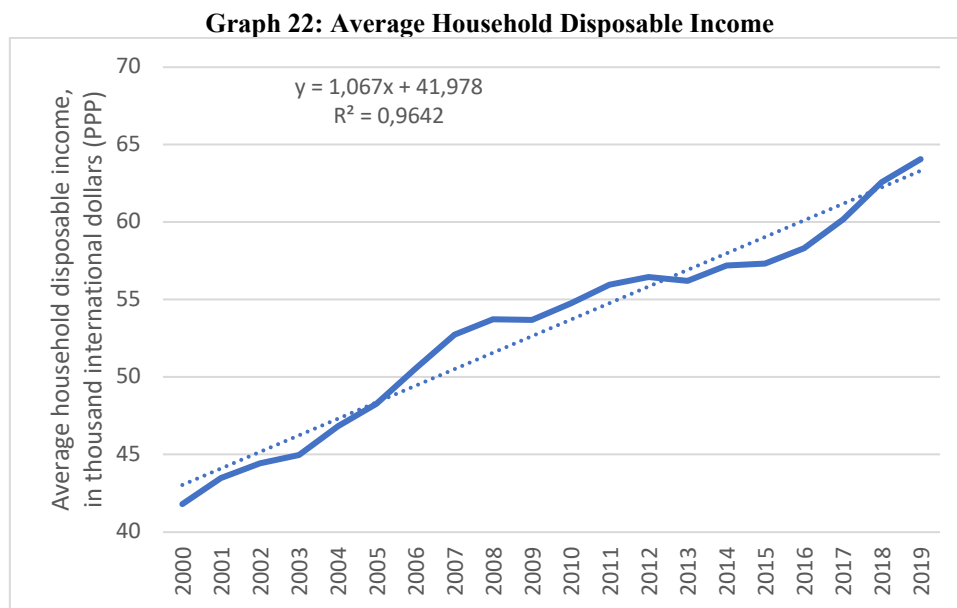


Source: Own work based on Eurostat data (2020).

The logarithmic trend used in graph 21 displays the equation $0,7682\ln(x) + 9,404$ and a coefficient of determination at 0.9512. A logarithmic approach is used by reason of the significant increase of the values during the first years before levelling off in the 2010s. In the early 2000s, the real minimum wage has witnessed a surge of its value, especially in 2004 and 2005, where it increased of respectively 3.32% and 3.89% due to two principle factors. During the 1990s and 2000s, the French government decided to lower the contributions imputed to the low incomes in order to handle the growing cost of labour and enhance employment. Moreover, the reunification of the different levels of minimum wages operated in 2003-2005 to create a common one led to revaluating it strongly. However, these actions brought some perverse effects: an increasing proportion of workers started being paid at the minimum wage since it represented lower costs for companies too (from 10% between 1987 and 1996 to over 16% in 2005), but it also led to a minimum wage increasing faster than the average salary of the whole population that causes the “crushing of the salary hierarchy” as mentioned by Aghion et al. (2007).

As the minimum real wage in France has been increasing quite significantly over the last periods observed, it is also interesting to have a glance at the country’s evolution of the overall average disposable income. Graph 22 below shows that evolution. The linear trend displays the equation $y = 1,067x + 41,978$ and a R^2 of 0.9642, meaning that 96.42% of the variation in average household disposable income can be explained by the model. The average disposable income of

French people has been quite in a steady progression since the 2000s. Indeed, we observe an average progression of 2,28% each year and a peak at 4% in 2018. This growth is obviously supported by the rising minimum wage the country has witnessed, enhancing the numbers for the majority of the population. We also observe that the CPI curve has similarities with the average disposable income curve, meaning that the positive income changes helped catching the pace of the increasing CPI, which was essential in order to not unbalance the country.

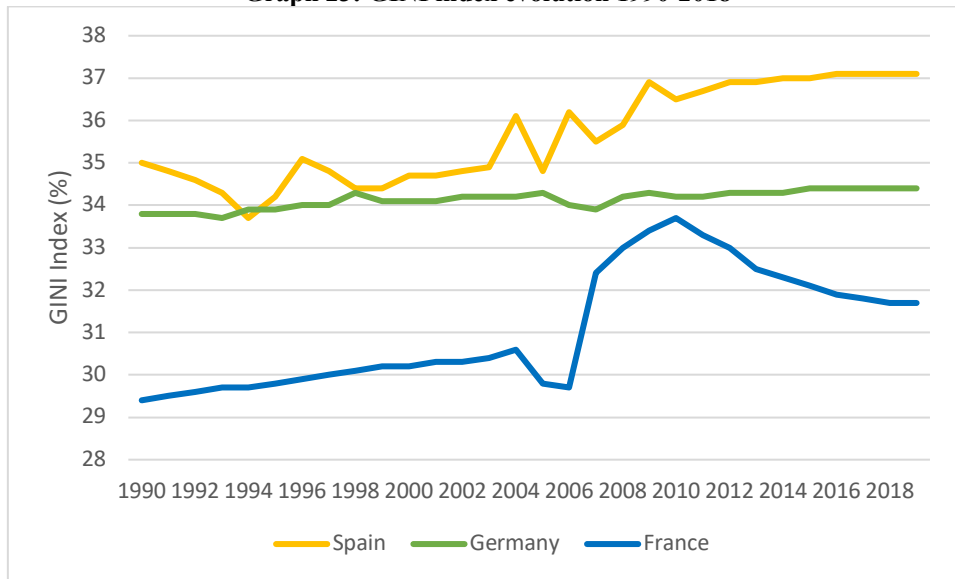


Source: Own work based on Eurostat data (2020).

4.1.2 Income disparities.

France is customarily seen as a country with low levels of inequalities. It is without a doubt a certainty when we come to compare it to countries with high level of inequalities like the United States where it rose drastically, however, we will see in that part that even though it is in smaller proportions than other countries, France did not escape at a marked rise in term of inequalities during the past few years.

Graph 23: GINI index evolution 1990-2018



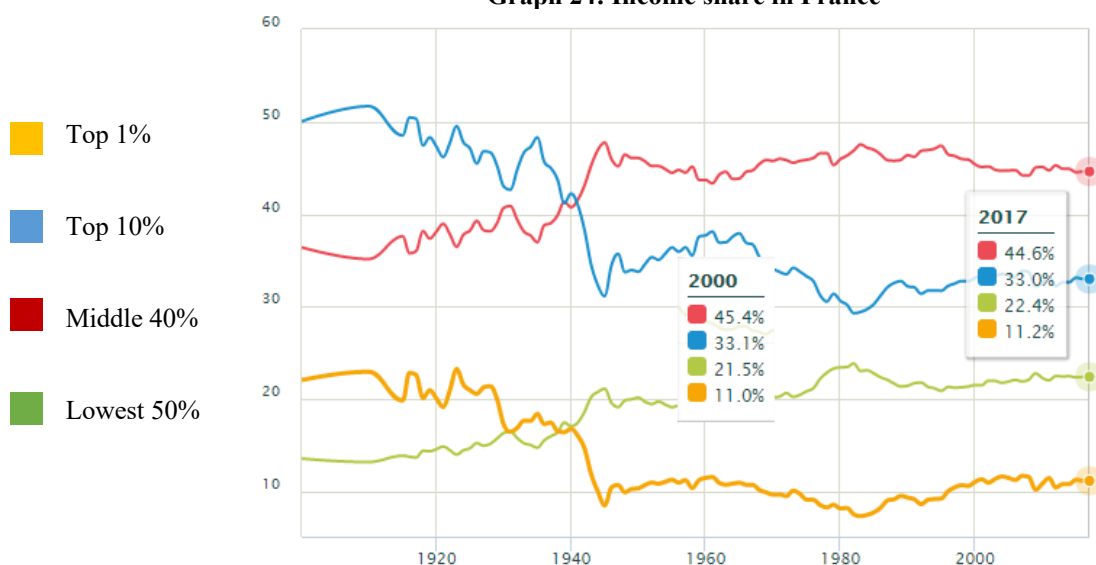
Source: Own work based on Eurostat data (2020).

Graph 23 above presented is displaying the Gini index evolution of Spain, Germany, and France for the period 1990 – 2018. At a first glance, we notice that France’s Gini index is by far lower than their two European neighbours’. Indeed, in 2018 France recorded a Gini index of 31.7%, which is 2.7 points lower than Germany and 5.4 points lower than Spain. Historically, France has been hosting lower income inequalities than the other presented countries, but we can read on the graph that a noteworthy spike emerged in 2007, where, after a noticeable decrease of the index from 30.6% in 2004 to 29.7% in 2006, the country’s index surged to 32.4% in 2007 and reach its peak of 33.7% in 2010. The declining French unemployment during the period 2006-2008 can be easily imputed as the cause of the diminishing income inequality in the country and, on the other hand, the financial crisis accounts for the sweep upward.

Whereas Germany seemed to have been little impacted by that event in term of income inequalities, Spain also witnessed a rise during that period, but at any rate moderate when compared to France. For the case of Germany, De Beer (2012) points out that this can be explained by “*the widespread use of short-time work arrangements, approximately equivalent to a 1.3% reduction of average working time in 2009 (Hijzen and Venn 2011: 21), and the use of annual working-time accounts. As a consequence, there was no net job loss between 2008 and 2009 and the unemployment rate increased hardly at all*”. Indeed, unemployment rate in Germany, in contrary to France, has witnessed really little impact of the financial crisis, moreover, between 2007 and 2010, the German unemployment rate decreased from 8.575% to 6.933%.

In the following years, France has been recovering slowly but surely. Since 2011, its Gini index has been gradually declining and reached 31.7% in 2018, closing to the pace that country had before the financial crisis. Gini index indicated the global trend of income inequalities in a country, but since it gathers various indicators, it does not describe the income inequality situation within the different social classes. Graph 24 below is displaying the evolution of the different income shares before taxes over the period 1900-2017.

Graph 24: Income share in France



Note: To follow on the World Inequality Data Base, the “middle 40%” will be here used as our middle-class metric.

Source: World Inequality Data Base, 2020.

As pictured, the income share repartition in France has evolved a lot over the decades and is due to the various events the country, and the world itself, had to face during those time. The first noticeable changes we observe occur at the dawn of the 1930s and derive from the Great Depression in the United States that occurred in 1929. The effects of that crisis will impact France through the whole decade of 1930, and if it affected France latterly than it did for the other countries, it, however, affected the country longer. In 1931, the unemployment rate took off in the country, especially in the industrial sector, where, in two years, the unemployment rate surged from 2% to 15%. This situation will impact mainly the lowest 50% and the middle 40%, that will see their income share respectively falling from 16.5% and 40.9% in 1931 to 14.7% and 37% in 1935. On the other hand, the top income tiers seem to have been not impacted during that period, benefiting from the income share loss of the less fortunate to increase the share of the top 1% from 16.5% to 18.4% and the share of the top 10%

from 42.6% to 48.3% for the same respective periods. However, the austerity the country finds itself in forces the Government to take actions. Public spending is drastically reduced, taxes massively increased, with a last tax bracket reaching a marginal rate of 90%, and the devaluation policy ran by the popular front at that time promotes promptly the employment of the working force.

This phenomenon started the declining income share of the wealthiest individuals in France, moving from 48.3% in 1935 to 41.2% in 1939 for the top 10%, and from 18.4% to 16.4% for the top 1% income earners on the same period. If the Great Depression started a declining trend in term of income inequalities, World War II accentuated it. War has to be financed somehow, and rising taxations coupled to high contracted debts will be deployed. The World War II period will narrow income inequalities, and especially by reason of the shock capital income will suffer from. Indeed, as Piketty (2003) advanced in his paper, whereas individuals relying mostly on wage income witnessed a limited decline, the ones relying on capital experienced shocks from both the Great Depression and the World War II that left significant scars. This is particularly the case for the very top earners (the 0.01%) that relied heavily on this capital and self-employment income. Businesses being shut down and countries being devastated, the income share of the wealthiest declined inevitably, falling down in 1945 to 31.1% for the top 10% earners and 8.5% for the top 1%, while the middle 40% and the lowest 50% rose respectively from 41.4% and 17.5% in 1939 to 47.8% and 21.1% in 1945.

After World War II, France entered a period of economic prospect that will later be referred as the “Thirty Glorious Years”. Between the end of the war and 1980, France’s economy grew rapidly, supported by an interventionist economic policy and the Marshall plan set up by the United States, improving the average real purchasing power of the French workers by 170% and the overall private consumption of 174% over that period (Ardagh, John. “The New France: A society in transition 1945-1977”. 1978). In term of income inequalities, two different evolutions are observed during the Thirty Glorious Years. First, during the reconstruction period, inequalities are rising as the top 10% earners increased their income share from 31.1% in 1945 to 37.9% in 1965. The top 1% earners also witnessed an increase, from 8.5% to 10.9% over that same period, but is much more moderate than the other tier, and due to their reliance on capital income this segment is recovering at a slower pace. However, the year 1968 will represent a turning point for France and the income inequalities in the country. In May 1968, a social unrest occurs, protesting that the economic prosperity showed at the time does not benefit enough the lower classes. Those civilian disturbances will unbalance the country for weeks

as well as halt its economy: 11 million workers declared themselves in strike, which represented at the time 22% of the total population of the country. To turn these strikes to an end, an agreement between the government, trade unions and the employers will be found, resulting in significant wage rises for workers that will compress the income inequalities in the country. Between 1968 and 1983, the lowest 50% have seen its share increasing from 19.3% to 23% and the middle 40% moved up from 45.4% to 47.5%, whereas the top 10% share fell from 35.3% to 29.4% and the top 1% from 10.2% to 7.3%. May 1968 would have had a drastic impact on reducing the income inequalities in France due to the very fast rise in wages it engendered, however, that phenomenon will come to an end in the early 1980s.

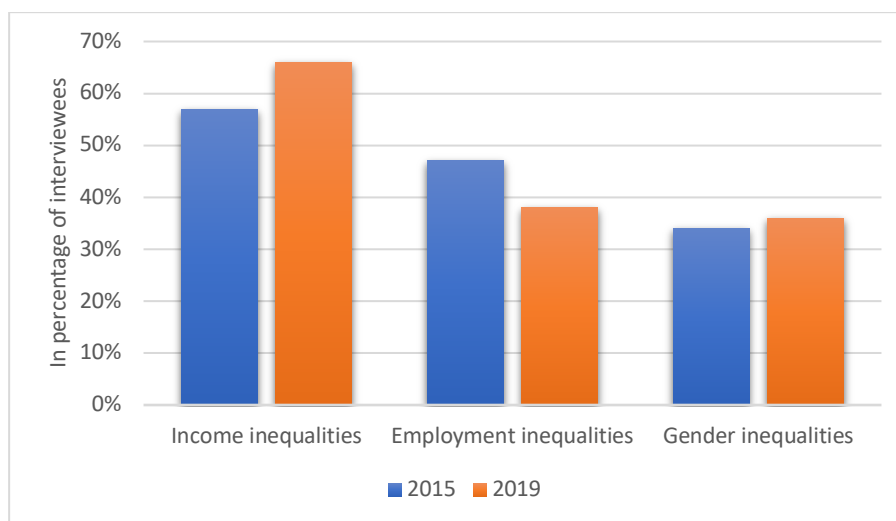
In 1983, the left-wing party, led by François Mitterrand, is elected to run the country. The economic difficulties France was facing at the time forced the government to declare several devaluations of the franc before decreeing an austerity policy in order to stay in the European Monetary System. The austerity measures will consist in the elaboration of the new taxes, but more importantly on a wage freezing that will no longer be indexed on the prices, stopping the pace the country built since 1968.

Since then, the income repartition among the country has not witnessed any major changes except during the financial crisis of 2008 and the repartition have been fluctuating over the years around a certain threshold. However, The share of the top 1% earners increased at a pace noticeable since it jumped from 8.6% in 1992 to 11.2% in 2017, representing an evolution of +30.23% whereas the middle 40% share decreased of 4.7% (from 46.8% to 44.6%), and the lowest 50% and the top 10% increased respectively from 2.75% (from 21.8% to 22.4%) and 5.1% (from 31.4% to 33%) on the same period. It is fair to assume that the increase of the top 10% share has been mainly driven by the surge of the top 1%, but the decline of the middle class over the last decades is a preoccupying subject since it represents the heartbeat of a country's economy, and a stable consumer base that drives productive investments. As the middle class has been losing income share and the lowest 50% have been increasing, we can assume that these changes are caused by a proportion of the now former middle class shifted to the lower class. As presented in graph 22, the average household disposable income has been increasing steadily during the past two decades, and the main beneficiaries from it can be determined by the evolution of the income share repartition in the country. The lowest 50% have seen their average disposable income enhanced, increasing the income threshold to which this

category is defined, and therefore gaining some shares over a stagnant middle class. The long-run evolution that emerges is uncontestedly the rising share of the income handed out to the lowest 50% and the middle 40%, and that bigger picture allows us to notice a real reduction of the income inequalities over the past century. However, during the two previous decades, the consequent rising pace detained by the top 1% earners and the declining French middle class will cause issues in the future if left unaddressed.

As a country lulled and built around strong social benefits, social factors such as income inequalities represent a significant concern for French citizens. Yes, global income inequalities in the country has been decreasing since its post-crisis surge, but the notable growth of top incomes during the past few years has not gone unnoticed. In January 2019, the French Institute of Public Opinion (IFOP) realized a survey on inequalities perception in France. Figure 7 below displays the three main inequalities judged as the most unfair by French people.

Figure 7: Question: “Among the listed inequalities, which are the three most unfair to you?”

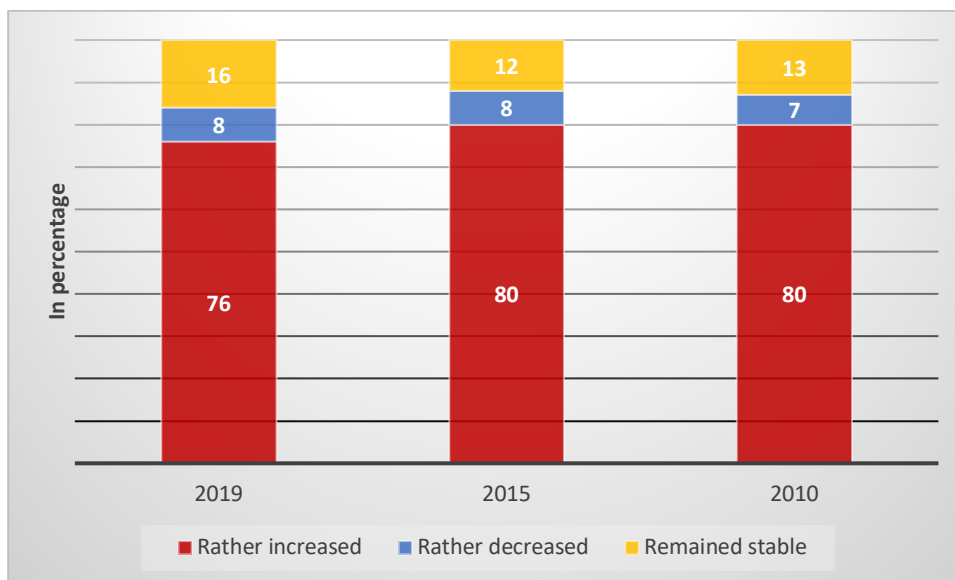


Source: IFOP's survey 2019, translation of the results made by the author.

As it was the case in 2015, income inequalities are still judged as the most unfair one, behind employment inequalities and gender inequalities, but the proportion of these votes have change to some degree. In four years, income inequalities have become the most unfair inequality for 66% of French people, against 57% originally. That nine points progression has been deviated from the employment inequalities that has been decreasing from 47% in 2015 to 38% in 2019, picturing a changing mentality of the population that tends to value more importantly a better wealth

redistribution than a more equalitarian access to the job market. This aspect is not really surprising though, France is a country where wealth is a taboo subject and other people’s incomes provoke an envious behaviour from the large majority. That dimension is also amplified by the medias, that often put ahead the big figures earned by the executives of large French companies, enhancing the unfair feeling individuals experience when it comes to comparison with themselves. As these income inequalities are being pointed out more and more, they also become less and less tolerated by French people, strengthening the feeling that we are facing a wide spreading phenomenon whereas in reality it has been decreasing steadily over the last decade as pictured in Figure 8.

Figure 8: Question: “Globally, in the last 10 years, would you say that inequalities in our country have...?”



Source: IFOP's survey 2019, translation of the results made by the author.

This question from IFOP’s survey has been asked in 2010, 2015 and 2019, and we can notice that in nine years, the state of mind of French people regarding that matter did not change much. The large majority thinks that the inequalities in France during the past decade has been rather increasing, even though between 2015 and 2019 it dropped of 5%, flinching from 80% to 76%. Whereas the proportion of interviewees thinking that inequalities have rather decreased has witnessed very little evolution, the main changes come from the interviewees thinking that inequalities remained stable where the proportion of answers in favour increase of around 23%, rising from 13% in 2010 to 16% in 2019. Whereas above mentioned inequalities in the IFOP survey refer to global inequalities within the country, I think it is fair to assume that the answers regarding income inequalities would reflect more or less the same trend. Although during the past decades overall income inequalities have been

steadily decreasing, the French state of mind regarding the subject goes into contradiction, with a large majority thinking it has increased over time. Though the statement was unquestionable in 2010, since it largely increased due to the financial crisis, and debatable for 2015 as half of the decade suffered from these consequences too, it is on the other hand way different when it comes to 2019 forasmuch as global income inequalities have been recoiling unwaveringly in the country.

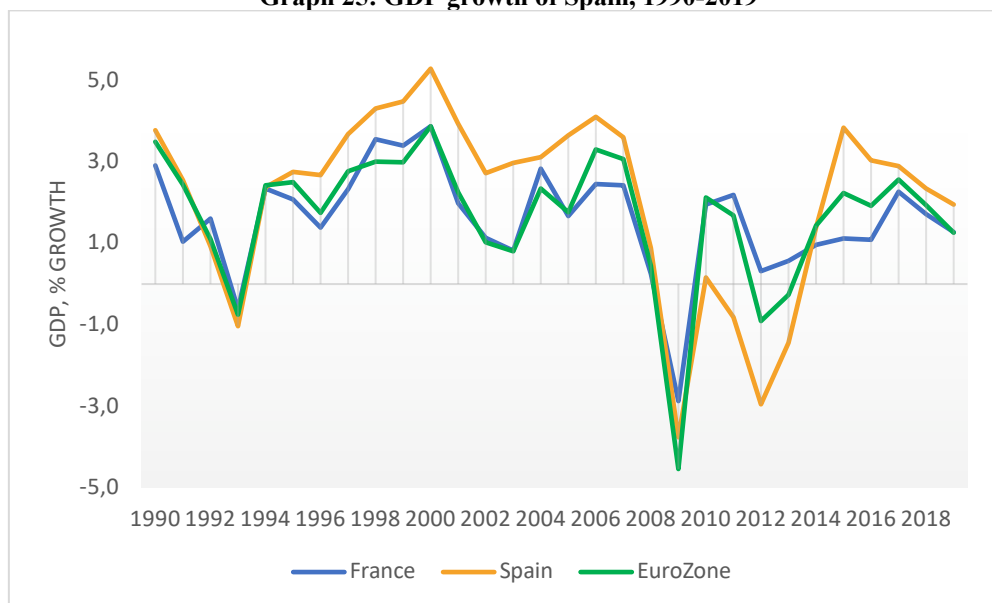
To sum-up on that part, income inequalities in France have been evolving a lot since the 20th Century, wrought by several events that, on the long-run, helped narrowing the income inequality gap. Income inequalities did rise in some proportions during the past few years, mainly due to the financial crisis the world had to face in 2007-2008, but since then it has been gradually declining and the country still remains as one of the most equalitarian among the OECD countries when it comes to income inequalities. However, the income share distribution of the country may communicate a concern as the French middle-class is decreasing, to the benefit of the lowest 50% and the top 1% earners. As we nowadays live in a society where information is easily accessible by all, the enrichment of the highest earners is being more pointed out and less tolerated in the country, potentially resulting in future social unrests if the situation is left unaddressed.

4.2 Case study of Spain.

4.2.1 Overall economic situation.

Just as France, Spain is a highly developed country, ranked as the 14th largest worldwide economy in 2019 and the 5th largest among the European Union. Its economic system is also a mixed economy: the economic decisions are oriented by the law of supply and demand that are determining the prices of the goods / services (the free-market principle), as well as state interventionism. However, public enterprises are less numerous in Spain than in France. Indeed, according to an OECD survey, Spain was accounting for 55 public enterprises in 2012, whereas France pointed at 68. An interesting point on that difference is the repartition of these entities. Spanish public enterprises are essentially operating in miscellaneous industries (58.2%) and the manufacturing (29.1%), whereas French public enterprises are in majority operating in the transportation industry (39.7%) followed also by the manufacturing (22.1%).

Graph 25: GDP growth of Spain, 1990-2019



Source: Own work based on OECD database (2019).

Graph 25 (was also used as graph 14 in chapter 4.1.1) above displays Spain's GDP growth over the period 1990-2019, and even though we can see that its trajectory is quite similar to the one from the Eurozone and France, the country's ups and downs are way more marked than its peers. The early 1990s is a period where Europe had to face the impacts of the stock market crash of 1987, also referred as "Black Monday", caused by the uprising interest rates in the United States, that led to a drastic reduction of foreign orders, especially from the American market. The fall of exportations as well as the Gulf War created an uncertainty climate that dove Spain, and more generally Europe, into a recession period between 1992 and 1993 where the country saw its GDP growth dropping of respectively 63.51% and 211%. Fortunately, this crash has been short and did not engendered an economic crisis due to the quick intervention of the worldwide economy, allowing the stock market to get back on its feet and to the whole economy to bounce back rapidly.

The end of that short period of recession was the beginning of an outstanding growth period for Spain, its golden ages in some way. The devaluation of the national currency (the Peseta) during the 1990s enhanced greatly the country's export competitiveness and engaged its economic growth. In 1998, the Spanish government, led by José María Aznar, passed a reform of urban planning legislation, increasing the amount of land for development and therefore the amount of properties. That reform is timing another important event in the Spanish economy, the integration of the Eurozone in 1999, that completely created a property boom, as the interest rates fell from 14% under

the Peseta, to 4% with the euro in just a few weeks. This phenomenon has created a real “*collective madness*” (Robert Tornabell, 2012) up to the point that property prices doubled in 10 years and that by 2007, the home ownership rate in the country soared to 87%, whereas for example the United States never came over the 70%, and France, in 2018, pointed at 65.1%. At the same time, employment rose and the country achieved a comfy economic situation that it did not have for years and decades, and furthermore, during that period Spain also witnessed a reduction of its income inequalities and was ranked as second (behind France) in being the most successful OECD country when it comes to that matter.

But that prosperity was built on the speculation that real estate prices would never fell, until it did in 2008. The financial crisis of 2008 was the beginning of a financial crisis known as the “Great Depression in Spain” that will last for years. Indeed, just as it happened in the United States, the Spanish government at the time had a lax supervision of the banks, which led them to violate the International Accounting Standards Board and feed even more the real estate bubble that, when it collapsed, made banks discovering “*that their balance sheets were filled with non-performing loans and toxic assets: urban land, unfinished housing developments, unpaid real estate loans to developers, and so on.*” (Robert Tornabell, 2012). The crisis forced banks to cease lending to undermine the upcoming effects, plunging the country into recession and a shrinking economy that will contract Spanish GDP by almost 4% in 2009. Banks were not the only ones hardly it by the crisis, the country’s regions were too. In Spain, regions run and pay for a lot of services such as Education, healthcare and other social services, and as they also tried to capitalize on the property boom happening a few years before, they found themselves in an indebtedness that they could not handle after the crisis. In the end, Spain was confronted to bail out both its banks and its regions.

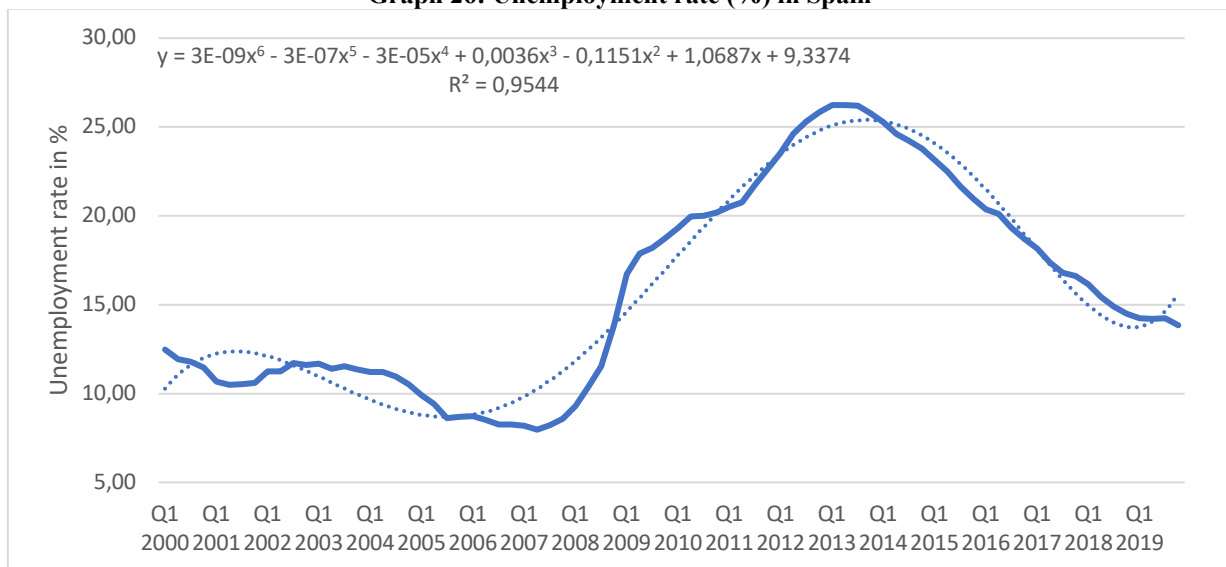
“Greed made us rich for a while – but then it made us poor, and jeopardized our future”
(Robert Tornabell, 2012).

The country’s low public debt ratio (around 60%), due to the expanded tax revenue attributed to the property bubble, allowed Spain to handle it by its own for a time, but these now lacking revenues, in addition to the economic backlash of the crisis, made the country’s public debt to soar, forcing them to adopt in 2010 new austerity measures to hold the deficit: wages were cut or froze, VAT tax increased and government spending reduced to a minimum (cut in health contributions,

suppression of diverse subventions etc.). Nevertheless, the growing difficulty of Spain to bail out its financial sector failed to reassure among the Eurozone, and in June 2012, the European Stability Mechanism (“ESM”) will grant a 100€ billion rescue package to the country, to which 41.3€ billion will be requested, to conduct the needed bank recapitalizations and stop the Spanish bleeding.

After years of recession, Spain’s economy is starting off again in 2014. The now resurrected banking system is bringing back investors’ confidence and the country is set to leave the ESM program to which they were attached after for its bail out. Furthermore, Spain is benefiting from a labour cost competitiveness, which is providing the country with growing exportations (even during its economic storm back in 2013) and is now allowing a surplus in the trade balance and encouraging job creations. The economic slowdown of 2016 can be accounted for the backlash of the recovering period of the country, as it is now catching up to a more “normal” pace and job creation is less needed as it was when Spain get out of its crisis. The cut of oil production by the Organization of Petroleum Exporting Countries (OPEC) is also one factor of that slowdown, as crude oil prices inevitably increased by about 5% due to that shortage, consumers faced higher prices that curbed consumption.

Graph 26: Unemployment rate (%) in Spain



Source: Own work based on Eurostat (2020).

Graph 26 above displays the polynomial trend of degree six $y = 3E-09x^6 - 3E-07x^5 - 3E-05x^4 + 0,0036x^3 - 0,1151x^2 + 1,0687x + 9,3374$. As explained in the French case study part, the polynomial trend is the one fitting the model the best due to largely oscillating values, which is often the case

when it comes to unemployment. The coefficient of determination is equal to 0.9544, which means that 95.44% of the Spanish unemployment rate can be explained by our model.

As I formerly introduced that France's unemployment rate was among the highest of the OECD countries, it is the same scenario for Spain, at the not insignificant difference that its situation is way worse, both in its history than its current times. In 2018, the percentage of the unemployed Spanish labour force pointed at 15.27%, the second highest rate among the OECD countries behind Greece, whereas the OECD average is situated at 5.48%. Historically, the country always had a high unemployment rate, as it always remained over the threshold of the 10% since the 1980s, except for the early few years of the second millennium.

One of the first reason the country is entangled in such a condition can be found at its historical roots and the Francoist dictatorship. During the reign of Francisco Franco, Spain found itself to cope with an autarkic economic policy, as the country has been kept away from the United Nations and any economic relations with most of Europe due to its support toward the Axis powers during World War II. This isolation reinforced Franco's ideology that Spain should be entirely independent and self-sufficient, and decided to cut the large majority of its international trade. The creation of the Instituto Nacional de Industria (INI) is created to support this policy, and that state-owned company aimed to frame the development of the autarkic economy of the country. However, this system will cause the Spanish economy to follow incisive measures that will stagnate its growth and make it even more less capable to resist to the international competition, leading to inexorable losses of real wages for the Spanish households and an increasing unemployment rate.

Another explanation in the history of low employment rate in Spain is linked to both the Francoist dictatorship and the religious history of the country. Indeed, Spain has an important catholic history, where the place of women was not among the labour force but at maintaining homes and nurturing kids, therefore it has come to a low participation rates of women workers that will result to be problematic when later women aspired to professional careers. Francoism also played a role at that low working rate of women: the political regime pleaded for the traditional role of women in the society, and those who aimed to work could not aspire to some key positions. In addition, Franco cancelled progressive feminist measures passed under the second republic of Spain, making women liberalization happening late, after the death of the dictator and the end of its regime. The end of the

Francoist Spain happened in 1975, and to put things in perspective you can have a look at table 1 below.

Table 1: Spanish female labour force participation rate, 1975-2018

Spanish labour force participation rate (% of total women, 15-64y)	
Year	Women
1975	27,9
1985	34,5
1995	45,8
2005	58,8
2018	68,9

Source: World bank data base, 2020.

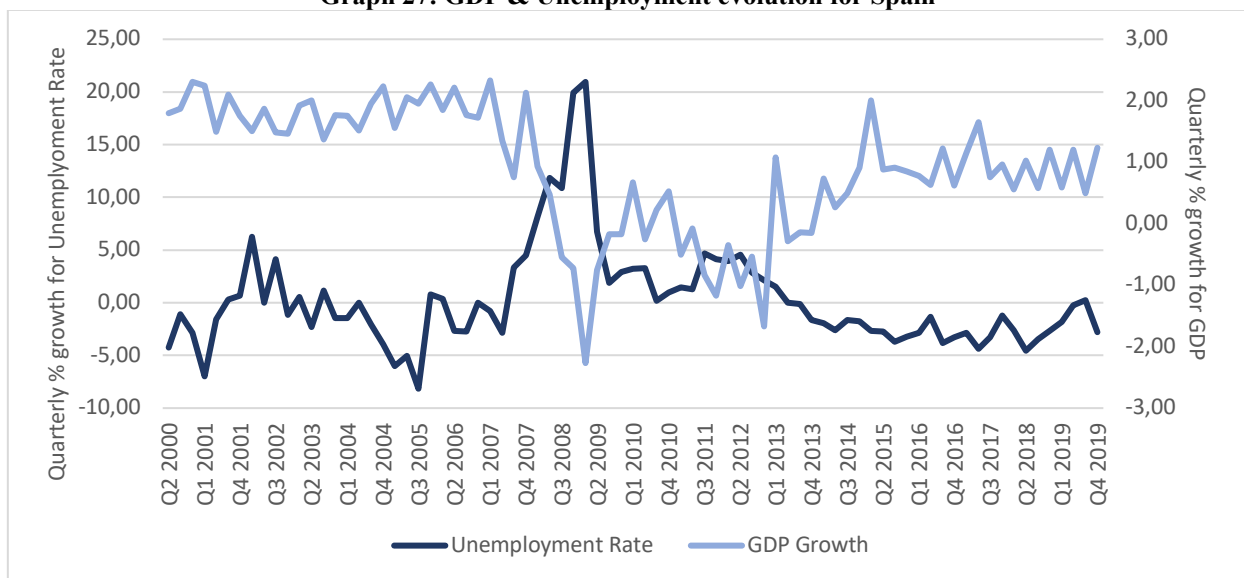
At that time, only 27.9% of the women were employed, whereas for comparison in France this rate was up to 57.5% at that same period. Women professionalization then after rose significantly, gaining every decade almost 10 points of labour force participation rate and pointing at 68.9% in 2018, an increase of 4000% since the end of the Francoist regime.

The lowering unemployment at the beginning of the 21st century is obviously explained by the property bubble I introduced in the previous part. At the time, constructions of properties were exploding, and therefore a lot of job creations resulted from it, reducing unemployment to 7.97% in 2007, a single digit number rate that the country did not record for years. That is the same drill for the soaring unemployment in 2009, as it is inevitably input to the financial crisis and the Great Spanish Recession it provoked, and the extent to which the curve is climbing puts in perspective the dramatic effect that it has had on Spain. Indeed, between the first quarter of 2008 and the first quarter of 2009, unemployment flew from 9.3% to 16.73%, an increase of almost 80%. The country reaches its peak in 2013, with a striking rate of 26.23%, the highest ever recorded in its national history and the second highest in the OECD history behind Greece that pointed at almost 28% at the same period.

As it is the case for France, long-term & youth unemployment is a genuine issue in Spain, particularly for the youngsters that are dove into a dramatic situation. Even though long-term unemployment has decreased from its 2014 peak of 52.84%, it remains among the highest of the OECD, with a rate of 41.73% in 2018, close to the one from France we have seen previously. The Spanish youth situation is way more concerning. Before the crisis, almost a third of the employed youth were working under temporary contracts, and when the financial crisis struck, they were the

first to be laid off. Indeed, in the late 2006, youth unemployment figured at 13.6%, around one point less than the OECD average, but in 2013, it soared to a scary 57.8%, the highest the OECD has ever recorded. In addition to the widespread use of temporary contracts, the skill gap we have approached in the French case study is for sure a cause of that soar, as Spain also suffers from a high rate of school dropout from its youth. Indeed, 21.9% of the 18-24 years old left education early in 2015, the highest school dropout rate in the EU, despite a significant improvement from its 2006 situation where it pointed at 30.3%. That general lack of education is leading to a real mismatch between the labour market requirements and the Spanish youth, making them vulnerable to high unemployment. In 2018, youth unemployment dropped to 35.27% with the economic regain of the previous years, a decrease of 38.97% from 2013, which however remains sadly high, and the same goes for its school dropout rate, that amounts to 18.3% in 2017, whereas the EU average is located at 10.6%.

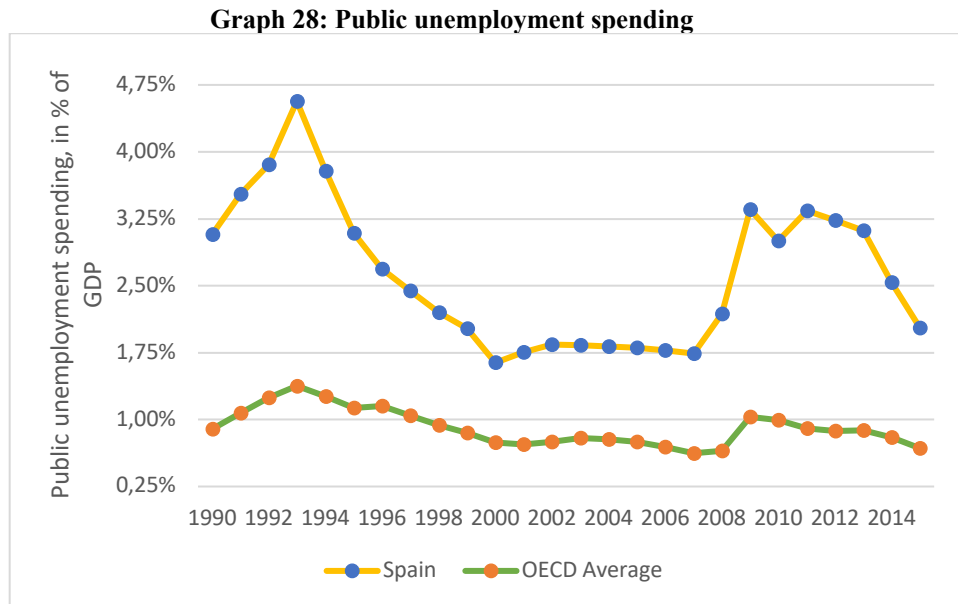
Graph 27: GDP & Unemployment evolution for Spain



Source: Own work based on Eurostat data (2020).

The relationship between GDP growth and unemployment is also something we can find back for Spain, as displayed on graph 27 above. As it was the case for France, the correlation is clearly identifiable on important economic events in the country's history. At first, the period of economic boom in the early 2000s: the Spanish GDP has been increasing quarterly around 2%, pushing job creations and therefore decreasing unemployment significantly between 2004 and 2005, with a highest decrease of -8.16% on the third quarter of 2005. The financial crisis of 2008 is also obviously pictured, when on the first quarter of 2009, Spain's GDP decreased of -2.27%, its unemployment soared of 20.95%, followed by the great Spanish recession it provoked, the economic struggle kept

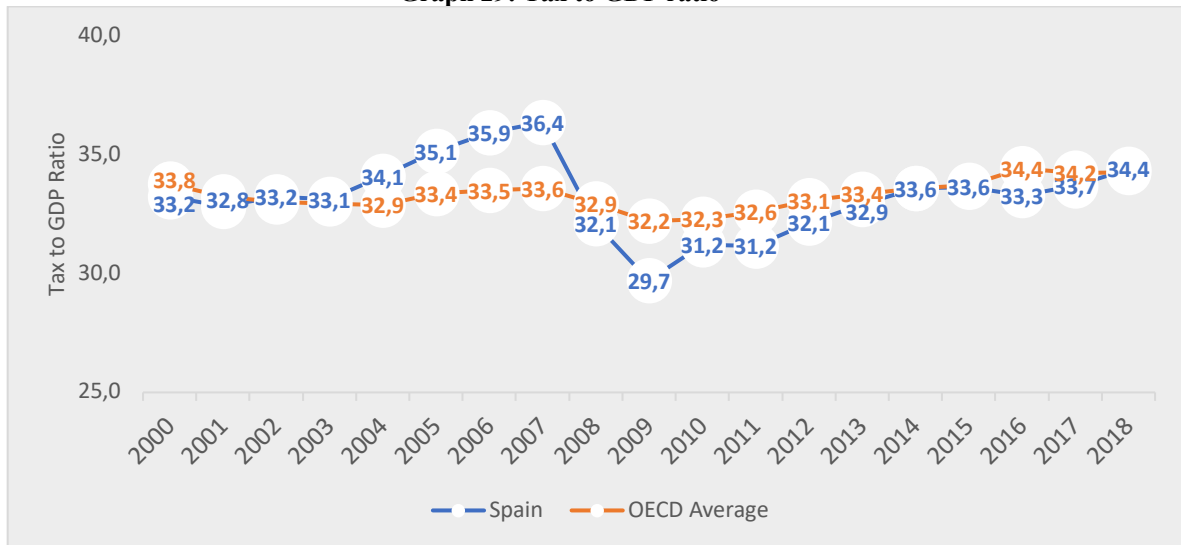
an expanding unemployment for years. Finally, the end of that recession in 2014, where the GDP growth found back a positive pace, oscillating around the 1% per quarter, creating a continuous decrease in unemployment due to a more prosperous economic environment.



Source: Own work based on OECD Public unemployment spending (2020).

High unemployment is inevitably weighting on the national economy, as the country has to provide for the citizens out of the labour market, and Spain having the second highest unemployment rate of the OECD countries, the public unemployment spending, as pictured in graph 28 above, are representing a large proportion of its financial resources. When the country got impacted by the “Black Monday” effects during 1990s, unemployment spending peaked at 4.57%, more than the triple the OECD average spent at the same time, before lowering down to 1.64% in 2000, as economic prosperity and job creations were getting back, supported by the real estate bubble. The financial crisis recession swept away those hopes, and unemployment spending stagnated between 3% and 3,5% for a few years until the economy recovered in 2014.

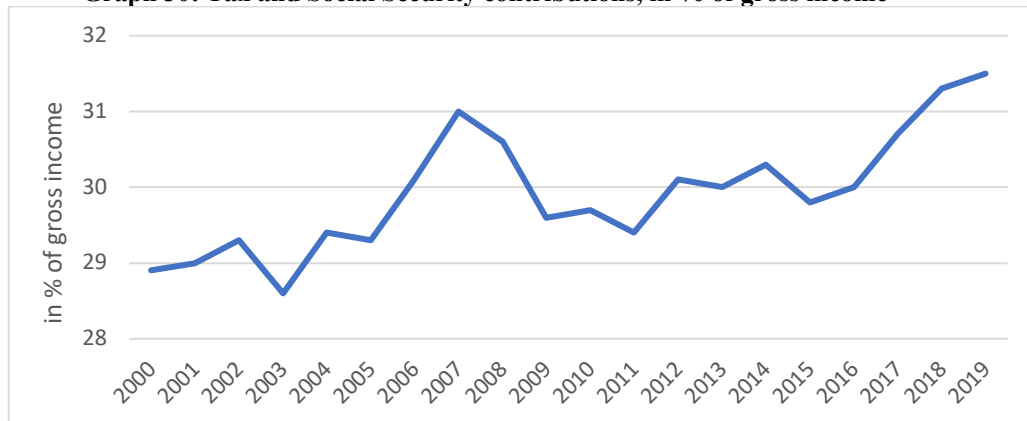
Graph 29: Tax to GDP ratio



Source: Own work based on OECD Revenue statistic, 2019.

Despite an important need of financial resources to support a high unemployment, we observe on graph 29 above that, unlike France, Spain does not rely on a heavy taxation system to do so. Indeed, the country is ranked 19th out of 36 OECD countries in terms of the tax to GDP ratio in 2018, and historically, it essentially lined up with the OECD average. When I talked about the Spanish economic growth, I have explained that its tax revenues were boosted by the property bubble, through the soaring amounts received by taxes on construction activities, property sales etc., and this episode is depicted in graph 29, when the country's tax to GDP ratio witnessed a noticeable increase during the early 2000s and moved up to 36.4% by 2007. Naturally, the financial crisis will see that ratio caves-in as the property bubble collapsed, so did its tax revenues, hitting a bottom low 29.7% in 2009. The tax burden of Spanish workers, like for many other countries, is subject to the political party at power, adjusting the taxation system of the country based on their ideology and how they see it fit. That is what we call political economy of taxation and we have approached it during the case study of France. Graph 30 below is displaying the tax and social security contributions for Spain, and we can notice that this scheme is way different that the one we saw for France, both in its numbers and its shape.

Graph 30: Tax and Social Security contributions, in % of gross income

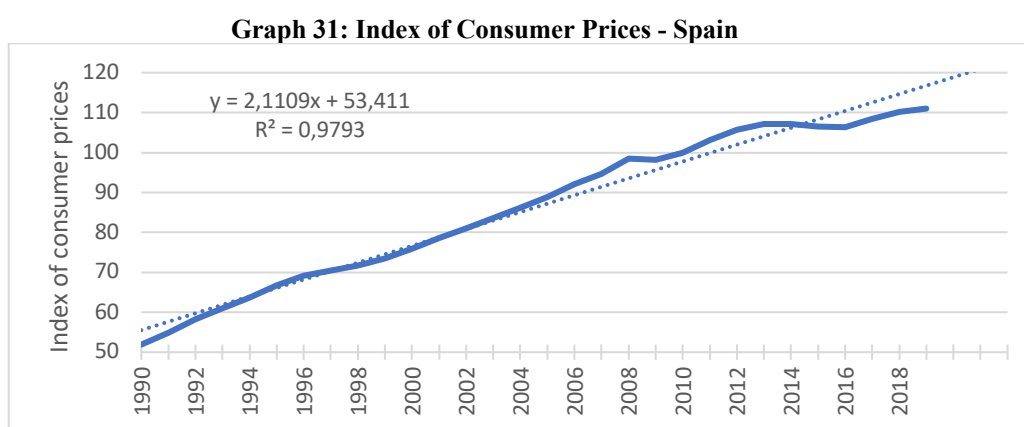


Source: Own work based on Eurostat data (2020).

Indeed, the evolution of the tax burden is hillier compared to its geographic neighbour, and it is also important to note that the income tax rate varies between each Spanish region. Between 2000 and 2004, the country was ruled by José María Aznar, elected Prime Minister for a second political mandate in a row, and adopted in 2003 a reform of the personal income tax, which consisted in lowering the number of tax brackets from six to five, as well as the maximum & minimum marginal tax rates from respectively 48% to 45% and 18% to 15%, and increasing the threshold of exempted minimum income. Those changes led to a decrease around -2.4% of the Spanish tax burden in 2003, but an increase in social contributions and miscellaneous direct & indirect taxes in early 2004 will cancel it with an overall increase of around 2.8%.

In April 2004, José Luis Rodríguez Zapatero takes the lead of the country, and undertake changes both on direct and indirect taxation. Firstly, in 2006, tax rate for alcohol & tobacco are rose for public health reasons, and an overhaul of the personal income taxation is passed in November 2006. That bill, implemented in January 2007, consisted of reducing again the number of tax brackets from five to four, as well as the diminution of the maximum marginal tax rate from 45% to 43%. However, the minimum marginal tax rates has been increased significantly from 15% to 24%, capital gains generated over one year moved up from a flat 15% tax rate to 18%, and other savings incomes that were previously taxed on a progressive scale shifted to that same 18% flat tax rate. These modifications will lead the Spanish tax burden to rise to 31% in 2007, representing an increase of around 5.44% from 2004. When the financial crisis struck, the Zapatero government took measures to respond to the deteriorating economic situation and the recession that came with it: personal income tax benefited from a 400€ tax credit and a small decreases of VAT to foster economic activity, but these measures will be cancelled in 2010 due to the austerity measures the country is forced to applied.

Overall, the tax and social security contributions will decrease down to 29.4% in 2011, but the pressure from E.U. members to stabilize Spain's finances on the new Prime Minister Mariano Rajoy will conduct to important tax changes, among other: an increase of the personal income tax, VAT moving up from 18% to 21%, an increased in withholdings, suppression of deductions on house purchases etc. Despite a relief of the tax burden in 2015, (in preparation of the upcoming political elections), the necessity of closing the public deficit will lead to new taxes, mainly indirect ones through negative externalities (tobacco, alcohol, sugary drinks, polluting vehicles...), and a stretching tax burden up to 31.5% in 2019.

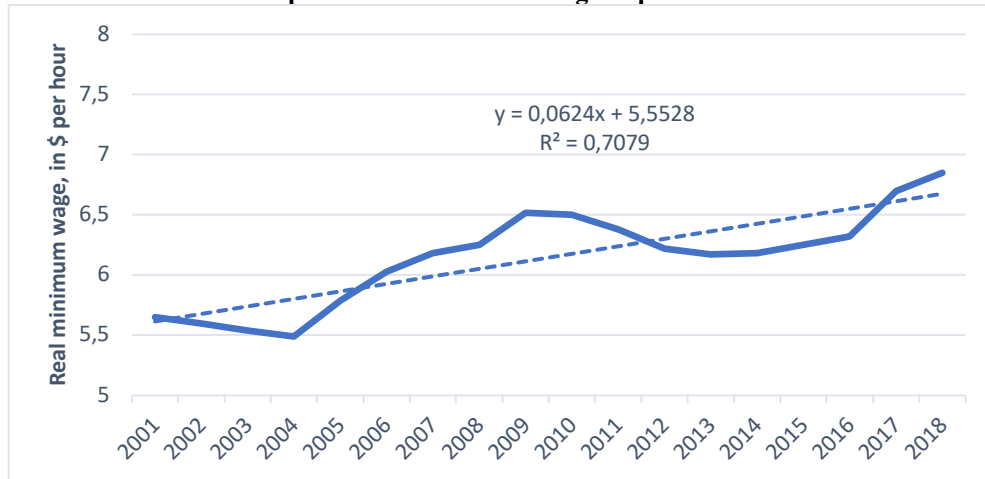


Source: Own work based on Eurostat data (2020).

The CPI evolution for Spain, displayed on graph 31, is quite similar in its shape than the one we previously saw for France, and its linear trend equation of $y = 1,3493x + 70,899$ is displaying a R^2 of 0.9793, meaning that almost 98% of the changes in CPI are explained by the model. However, the amount of which the CPI has increased over time is different. Indeed, if we take the beginning and ending values for the observed period, we notice that the CPI for Spain has increased of 113.87% in 30 years, whereas France's increased by half less: 54.63%. A high rise of that index happened in the early 1990s, where we observe an annual increase of around 5%, leading to a CPI of 69.1 by 1996. That significant increase is notably due to the high inflation rates (ranging from 6.72% to 3.6% over that period) provoked by the before mentioned devaluation of the Peseta (the national currency) as well as an enlargement of oil prices due to the Gulf War conflicts. In 1999, Spain joins the Euro zone, engendering a fall of interest rates and therefore in 2000, an escalation of the inflation rate to 3.48%. The CPI will witness a similar growth of around 3% per year and will stagnate at that pace until the financial crisis of 2008, that will bump it up to a 4% growth, reaching 98.5. The following years will note a more stable progress, as inflation will evolve at a less veloce speed: about a 1.17% annual

growth since 2010, and even to a short period of deflation that can be imputed to the tumbling down oil prices in 2014, leading to a momentary decrease of the CPI of -0.56% in 2015.

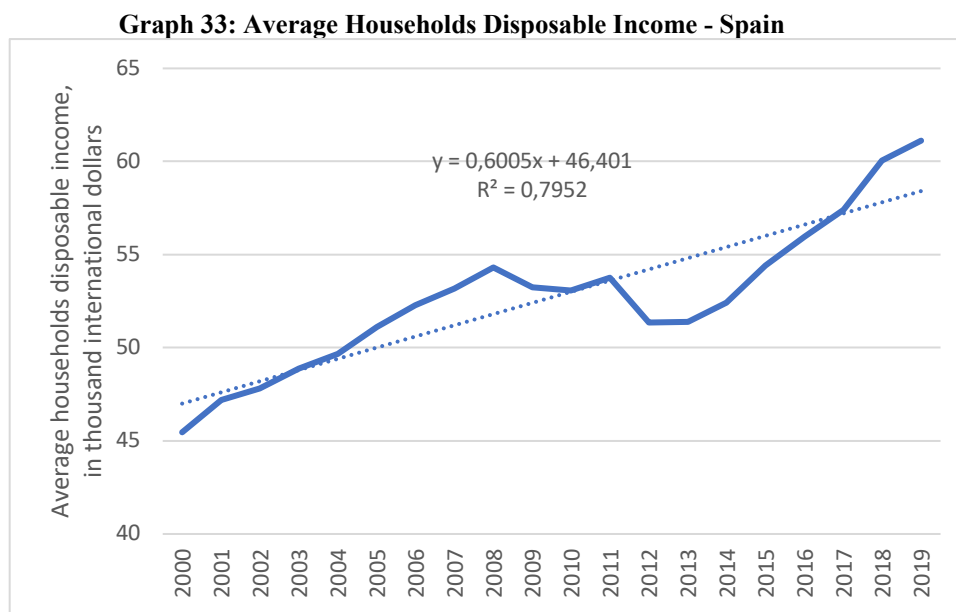
Graph 32: Real minimum wage - Spain



Source: Own work based on OECD (2018).

As we already saw what real minimum wage was about in the part dedicated to France, I will just remind the point that individuals' income has to follow the pace of the CPI in order to maintain a healthy economy, and that low-wage workers shall not work more to reach the minimum standard of living they were able to afford a few years back. On graph 21 we previously saw that the French real minimum wage evolution was following that logic and turned out to mainly be in adequation with the country's CPI. On the Spanish side, we discern that the real minimum wage does not string along at all with the CPI. Graph 32 is displaying a linear trend of equation $y = 0,0624x + 5,5528$ and a R^2 of 0.7079. Between 2001 and 2004, real minimum wage dropped from 5.65\$ to 5.49\$, a decrease of -2.83% due to an over 3% inflation rate whereas the Spanish minimum wage (called "SMI") remained flat. The property boom bringing a favourable economic situation, José Luis Rodríguez Zapatero will increase the minimum wages during that period, amounting to 6.25\$ in 2008, an augmentation of around 13.84% since 2004, and the large deflation of 2009 will also allow to extend the real minimum wage up to 6.52\$. However, the recession and the country's deficit it engendered will require Spain to cut in wages in 2010 and 2012, achieving a real minimum wage of 6.17\$ in 2013 and a real loss of purchasing power. The end of the recession will also come with several increases of the minimum wage: +1% in 2015, +8% in 2016, +4% in 2017, +22% in 2018, and in addition with a three years of deflation that started 2014, the Spanish real minimum wage will point at 6.85\$ in 2018, ranking it at the 15th place out of the 32 listed OECD countries.

Spain's real minimum wage evolution has not been a long quiet river, and we can ask ourselves if those same turbulences were also translated on the overall average household disposable income of the Spanish, and observe the potential impact this evolution has had on it.



Source: Own work based on Eurostat (2020).

Graph 33 above discloses a linear trend of equation $y = 0,6005x + 46,401$, with an R^2 of 0.7952. The Spanish households' disposable income increased at a 1.59% rate annually, and at a first glance, we can see that this progression is composed of two large expansions: the first happening obviously during its property boom, and the second one when Spain left its recession period, and a noticeable decrease during the before mentioned recession. Between 2000 and 2008, and in contrast with the evolution of the real minimum wage, the average disposable income of Spanish households has increased of an average 2.25% per year, to stood up to at 54,320 PPP\$ in the end of that period.

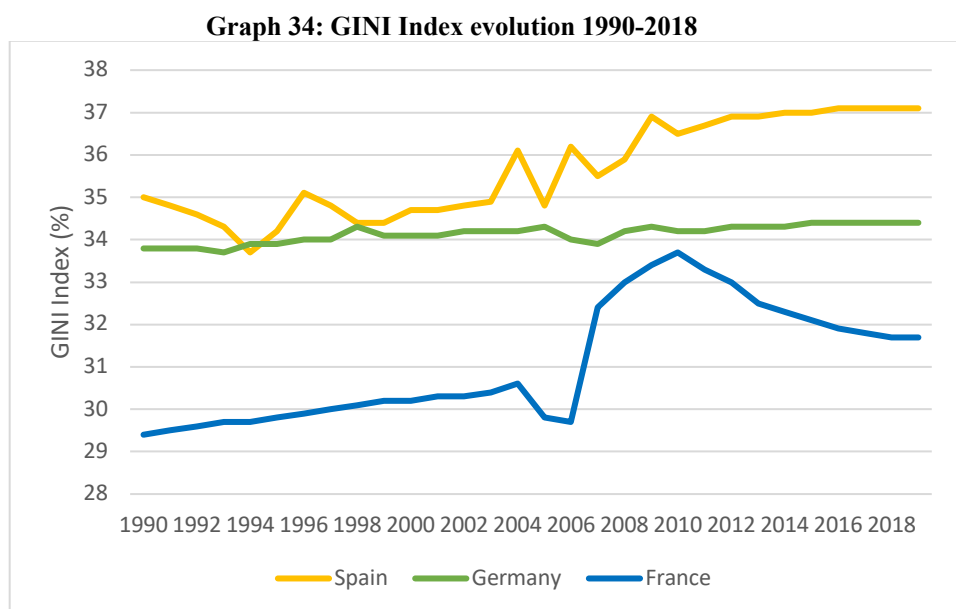
We hereby observe that the declining SMI over the first few years of the second millennium did not slow down the overall disposable income, and that its enhancement by 2005 will strengthen even more the numbers for the whole population. The good economic condition of the country is clearly the cause of it, as the country and the local companies were getting better off, so did the related workers, and at its apex, the lowest wagers were also benefitting from it. The recession time will necessarily weight on the households' disposable income, as the soaring unemployment, the numerous austerity measures resulting in wages cuts, the tumultuous economic condition of the

country... will harm the Spanish households' disposable income by two majors decreases in 2009 and 2012, of respectively -2.01% and -4.47%.

Moreover, that increasing income also relied heavily on the speculative housing bubble, that when it collapsed, teared apart that illusion. Nevertheless, Spain's economic recovery in 2014 will also come with a soaring improvement of the Spanish households' disposable income, with an average increase of almost 3% per year up to 2019 to achieve an amount of 61.120 PPP\$, due to a significant decrease of unemployment and a GDP growing twice as fast as the average of the Eurozone, ranking Spain as the best-performing major economic among it.

4.2.2 Income disparities.

Since the mid-1980s, Spain has experienced a remarkable growth of its aggregate wealth, broadly due to the housing paroxysm, which lead us to lean on how that wealth enlargement, and in our case how that income enlargement, has been dispersed through the different categories of earners. Graph 34 (was also used as graph 23 in chapter 4.1.2) below displays the GINI index evolution from 1990 to 2012 and gives us a first outlook on the overall income inequality in the Spanish kingdom.



Source: Own work based on Eurostat (2020).

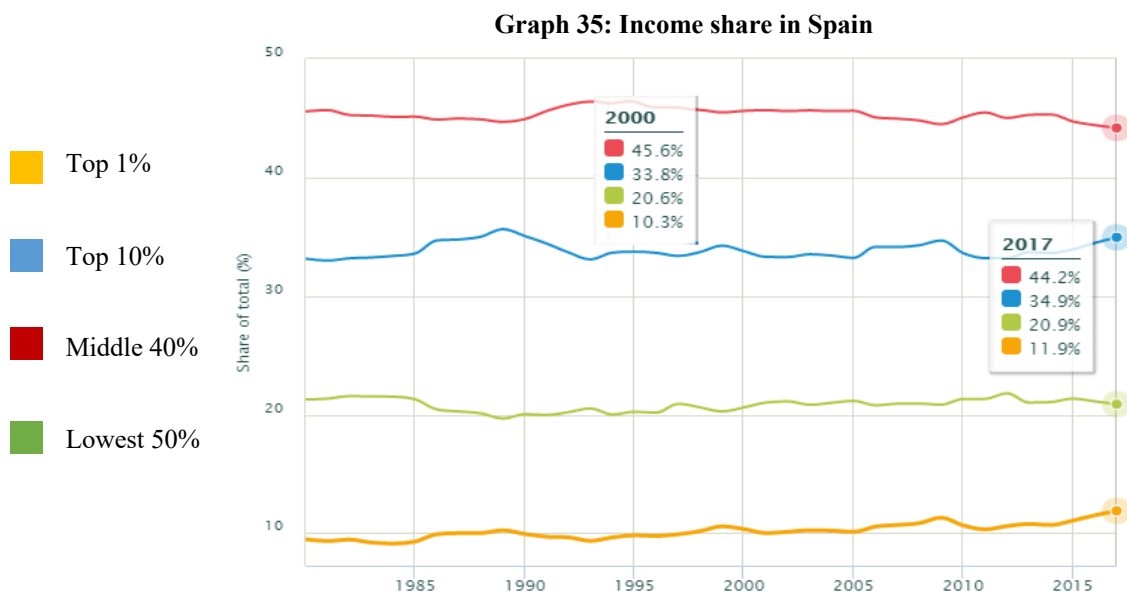
Income inequality tends to be lower in Nordic countries such as Norway or Finland than it is among the largest E.U. economies, yet Spain has a strikingly high level of income inequality even

among them, even the highest of the top five economies. The country always had a high level of income inequality, and its modern evolution has been quite of a rollercoaster. The beginning of the 1990s will firstly be marked by a -3.71% decline of the Spanish GINI index between 1990 and 1994, lowering from 35% to 33.7%. Whereas at that period Spain was facing the consequences of the stock market crash of 1987, the country witnessed a large decrease of its unemployment rate since the mid-1980s, as the country opened its economy and joined the European Union after the death of Franco. That consolidation of the welfare state will bring a small reduction of income inequality for a time, until the recession, that will conduct to a brief sweep upward of 4.15% in 1996 and cancel the benefits previously acquired. The economic boom supported by properties extensions will bolster a growing income for the Spanish, and from 1997 to 2003, income inequality will be stagnating to an average growth of merely 0.05% for six years. That small increase can be imputed to the slight decline of real minimum wage over that period, but nevertheless that statement translates that despite a surge in commonwealth, income distribution seemed to have been more or less fairly handed out. The period between 2004 and 2007 will witness large variations that we do not find back in other countries like France and Germany, which can be linked to the “collective madness” effect I have spoken about in a former part. As individuals wanted to benefit from low interest rates, numerous real estate projects started, and housing prices skyrocketed: Residential Property Prices Indices (RPPI) increased at a yearly average rate of around 10%. That soar of housing prices engendered a game of buy and sell of properties that fed the bubble even more: people would buy and sell properties (that, in most cases, were not even built) from one day to another, and in 2006 the number of housing transactions amounted to an abnormal number of over 955,000 units in one year. This situation combined to a decreasing unemployment and an increasing real minimum wage arising out of the good economic growth led to a rollercoaster of income inequality where numbers were varying too much too quickly.

When the financial crisis struck in 2007 and ended that speculation, overall inequality in Spain surprisingly did not deteriorate at first. Indeed, in 2007 the GINI index even fell slightly and also stagnated in 2008. However, the recession the country entered at the time following the crisis will that time deteriorate income inequalities significantly and pointed at a striking high GINI index of 36.9% in 2009. The soaring unemployment is obviously no strange to it all and income inequalities will continue to marginally increase after that, fluctuating around 37%, despite a decreasing unemployment and a gain on real minimum wage that although it did not narrowed the gap, it helped

to not widen it. It is interesting to state that the reason income inequalities / GINI index did not surge as it did for France is that compared to Spain, France housing prices did not soar drastically over the last years, which means that when the crisis struck, value of properties stayed more or less the stable and therefore creating a huge gap between the wealthiest benefiting from ownership, and the poorest, whereas Spain’s property collapse unavoidably impacted housing prices.

Now that we have seen the overall situation of Spain, it is necessary to investigate deeper and have a look at the income repartition among the different categories of earners in order to have a better reflection of income inequalities in the country. Graph 35 below is displaying the evolution of the different income shares before taxes. Unfortunately, information provided by the World Inequality Database are less furnished for Spain that it is for France, and therefore main of our analysis will be focused over the period 1980-2017.



Note: To follow on the World Inequality Data Base, the “middle 40%” will be here used as our middle-class metric.

Source: World Inequality Data Base, 2020.

Indeed, data regarding income distribution were rarely reported at the dawn of the twentieth century, and so was it under Francoist Spain, therefore such data started to be available and exploited at the end of the political regime which lasted forty years. However, Alvaredo and Saez (2009) in their research were able to display the income share of the top 0.01% earners from 1933 based on tax statistics, and even though it does not give us a detailed outlook of the situation, it pictures the events that shaped Spain’s income distribution. Appendix 7 is displaying Alvaredo’s and Saez discovery,

and we observe that, as it was the case for France, the decreasing share of the wealthiest happened abruptly between the mid-1930s and 1940s. The highest income aggregation detained by the top 0.01% amounted to around 1.5% in the mid-1930s before witnessing a significant decrease afterward, down to around 0.6% in 1950, a loss of 60%. It is not surprising when we know the tumultuous events Spain has gone through that period: in 1936, the country was plunged into a civil war that will put Franco at power and the start of its reign, and despite no solid documentation explaining such a decline among the very top earners, we can assume quite certainly that the autarkic measures and the overall bad economic governance accounted for that severe decline. One interesting fact that Alverado and Saez pointed out is on the income composition of these top earners. Indeed, at the beginning of the Francoist Spain, the top 0.01% majority were not only relying purely on rents, but were owner of non-farm businesses (26% of their income), financial assets (35%), personal labour income (15%) etc., and as the country's economy closed under Franco regime, that income composition noticeably changed, as non-farm businesses dropped to 9%, to the profit of farm-businesses, that jumped from 5% to 20%.

Until the 1980s, the income share remained stable around 0.6%, but the restoration of democracy that will reopen the Spanish economy to competitors will engender changes in the income concentration. Indeed, Spain was forced to bring forth a severe restructuring of its economy, especially in the agricultural and manufacturing industry, in order to catch-up with the worker productivity showed by its competitors, and the large new technologies available to do so. That restructuring, in addition to the oil shocks, will engender mass unemployment among the lowest earners: between 1980 and 1987, unskilled labour force unemployment will grow from 10.7% to 20.2%, a rise of almost 90%, and the sectors of agriculture and manufacturing will see their shares in total employment decreasing respectively from 19% and 27.1%, to 15.5% and 24%. On the other hand, the total share of employment in the services sector will grow from 44.9% to 52.6%, a growth of almost 15% that confirm that more skilled labour did not face the hardships hitting the other workers at the time. That reorganization will mainly harm the lowest 50%: their income shares will fall from 21.3% in 1980 to 19.7% in 1989, a loss of -7.5%. The middle class will suffer a more moderate decline, as its share will drop of -1.97%, from 45.6% to 44.7%. The surge of the income shares of the wealthiest is not surprising in view of these structural changes. The top 10% and 1% earners will expand their income shares from respectively 33.1% and 9.5% to 35.6% and 10.3%, corresponding to a rise of 7.55% and 8.42%. That period will stand for the largest income inequality

gap in the modern history of Spain, where the top 10% Spanish earners owned almost two times more income shares than what the bottom 50% did.

The “Black Monday” of 1987 will result in a momentary but significant narrowing of the income inequality gap, just as we observed for its consequences on the GDP growth of the country. The stock market crash in the United States inevitably impacted the Bolsa de Madrid (Spain’s principal stock exchange) that in 1992, reached its all-time low of 1,861 points. Even though we do not have sufficient information about who are the owners of stocks in Spain, the Federal Reserve of the U.S. revealed in a report that 55% of the American households owned stocks in 2020, and on these 55%, 51.8% were owned by the top 1%, 35.4% by the top 10%, 12.1% for the middle 40% and only 0.7% for the bottom 50%. It is clear as a bell that the Spanish numbers would differ from the American’s, but in my opinion, it is fair to assume that this pattern is more or less present in all modern economies, including Spain. Moreover, the share of financial assets in the wealth composition of the top 1% in Spain dropped significantly in 1989, where it was situated around 21%, to a bottom low of around 18% in 1991 (World Inequality Database report, 2018). Therefore, the stock market crash of 1987 and its consequences had a narrowing effect on the income concentration in Spain, as the top earners were the mainly hit by that event. Indeed, the top 1% income shares dropped of -8.74%, from 10.3% in 1989 to 9.4% in 1993, and the top 10% earners have seen their income shares diminishing from 35.6% to 33.1%, a loss of -7.02%. On the other hand, the middle 40% and bottom 50% obviously benefitted from it, and their shares increased of respectively 3.80% and 4.06%, allowing the middle class to reach its highest income share in Spain’s modern history, at a 46.4% rate.

The following years will take the same path, as from the mid-1990s the dot-com bubble¹ gained momentum, which fostered the income of top earners through the stock market. Even though the increase on the stock market was more moderate than in the United States (the Bolsa de Madrid index rose of 18.35% in 1999, whereas the Nasdaq index almost doubled in one single year, with an increase of 85.59%), it widened the income gap a bit more: the top 1% income shares surged from 9.7% to 10.6%, an augmentation of 9.28% and surely accounts for the increasing top 10% that have seen their

¹ The dot-com bubble was a stock market bubble that happened from the mid 1990s to the early 2000s. As internet adoption was soaring in our society, speculations around internet-related companies were growing drastically and achieved striking levels on the stock market, that when it collapsed, harmed, and even shut down, numerous companies that relied on it.

income shares increasing slightly of 1.78% (from 33.7% in 1994, to 34.3% in 1999). As for every speculative bubble, it exploded at some point, and in the early 2000s that explosion will narrow the income gap, but only to the level it had at the beginning of that speculative bubble. The reason we did not witness a larger loss among the top earners (like the one we have seen for the Black Monday) is that firstly, although the Spanish stock market suffered from that collapse, it still kept a high level due to its moderate upsurge beforehand and that it is benefiting of the economic boom the country entered by the late 1990, and secondly, it can be imputed to a shift in the wealthiest income composition. Indeed, the housing boom inclined the top earners to substitute part of their financial assets in favour of property acquisitions, which therefore attenuated the losses from those ones when the stock market crashed. Income distribution will not evolve much from 2001 to 2005: the property boom was exploited by all categories due to low interest rates, the increasing employment and real minimum wages boosted the lowest categories leading to an overall better-off from the country.

The property boom apex of the years 2006 / 2007 will strengthen the Spanish wealthiest individuals that acquired additional properties, benefitting from housing prices that reached its peak in 2007, whereas the middle class and the bottom 50% were affording ownership of their main residence. In the meantime, stocks value surged as well, with an Ibex 35 (the index of the Bolsa de Madrid) rising of 31.79% in 2006 to amount to its all-time high of 16,040.40 points on November 9th, 2007. The financial crisis in 2009 will depict an uncommon phenomenon: unlike it was the case for France, that crisis did not narrow the income gap, but instead, it widened it.

Indeed, the top 1% income shares moved up from 10.6% in 2006 to 11.3% in 2009, a surge of 6.60%, which drove the top 10% to a rise of 1.46%. Various reasons can be put ahead to explain it: a soaring unemployment that increased of almost 80% within a year that targeted the middle class and the lowest 50%, as houses were expanding dreadfully, many people were living from construction jobs and the financial crisis ripped it away. Moreover, the declining housing prices, whereas it made everybody worse-off, would have impacted the lower classes more severely, since the top earners own a income portfolio more diversified, and the quick rebound of the stock market where the Ibex 35 rose of almost 30% in 2009 (after a loss around 40% on the previous year), allowed them to be less affected by that drop.

However, the following recession will bring a diminution of income inequality. As approached in a previous part, Spain is facing a delicate economic situation following the crisis. The dropping housing prices (-1.75% in 2010; -7.65% in 2011 and -14.80% in 2012) inevitably also damaged banks, both local and national, requiring a first state bailout to prevent its collapse, and therefore preoccupying both the E.U. and the financial market. That instability climate will shrink the Madrid stock exchange: the Ibex 35 declined for three consecutive years, -17.43% in 2010; -13.11% in 2011 and -4.66% in 2012. The income shares of the top 1% will be the mainly impacted, with a decrease to 10.3% in 2011, a loss of -8.85% from its 2009 ratio. The top 10% dropped to 33.2% at the same period, a more moderate decline of -4.32%, mainly determined by the drop among the 1%. On the other hand, the middle 40% moved up to 45.5% in 2011, and the bottom 50% to 21.3%, a respective rise of 2.25% and 2.40% compared to 2009. The bailout of the Spanish banking sector through the rescue package of the ESM will rebuild trust among financial investors, and as economic growth started to get back on its feet, the financial market bolstered again the top income earners.

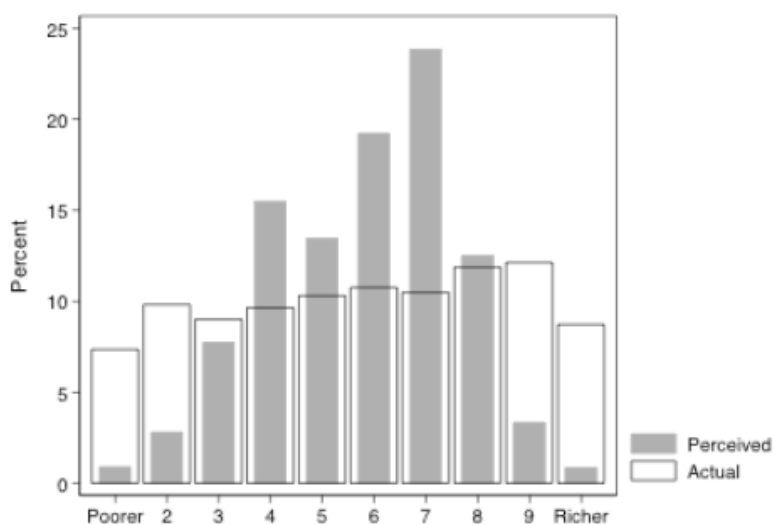
From 2013 onward, the income inequality will widen over and over, as housing prices are slowly moving upward after its bottom low and the financial market recovery handing out significant additional income at the top of the distribution, whereas the lower classes have to deal with a slowly decreasing unemployment that struggles to close the gap of its former pace. In 2017, the income shares of the top 1% reached its apex: with an aggregate of 11.9% of the income distribution, while the top 10% reached 34.9%, close to its former level pre-Black Monday. The bottom 50% amounting to 20.9% witnessed almost no changes (less than -0.1%) from its level of 2013, but on the other hand, the middle 40% income shares dropped constantly during that period, from 45.3% in 2013 to its a bottom low of 44.2% in 2017, a loss of -2.53%.

Under the period analysed, income concentration has changed noticeably, and we can identify a clear winner and loser. Between 1980 and 2017, the income shares of the top 1% grew of 25.26%, the top 10% of 5.44%, and the bottom 50% of 1.88%, while the middle class declined of -3.07%. Top earners have seen their income shares enhanced the most, mainly driven by the soaring income of the top 1%, and whereas the bottom 50% were able to nibble a piece of the cake, the middle class have been sinking.

Income inequalities tend to provoke social tensions and confusion within a country, since it nowadays come to be more put ahead due to the larger amount of information we have access to. In the French part, we have constated that the majority of the people judges that global inequalities have increased, and I assumed that the trend corresponding strictly to income would match more or less, but it would also be interesting to have a look on how people place themselves into the income distribution, and this is what we are going to do for Spain.

This is an interesting topic since people’s own subjective income placement would, in the majority of the cases, intrinsically influence their answers regarding the global evolution of income inequalities. To begin with how much people know about income inequality, Gimpelson and Treisman (2015) in their paper used the results from the 2009 survey of the International Social Survey Programme (ISSP) to calculate the “*Percentage of respondents choosing the diagram with the Gini coefficient closest to the correct one for their country*”. Out of forty countries, only three times a majority have get it right regarding pre-tax income distribution: Croatia (51% of correct answers), Hungary (52%) & Latvia (68%). Concerning Spain, only 15% of the Spanish interviewees chose the right Gini diagram related to their country, and as an additional information, France percentage of correct answer was at 17%. These first data let us know that globally individuals do not have an accurate vision of the income inequalities in their countries, but how much do they know about their position among the income distribution? Fernandez-Albertos and Kuo (2013) studied it for Spain, and the results are translated on Graph 36 and 37 below.

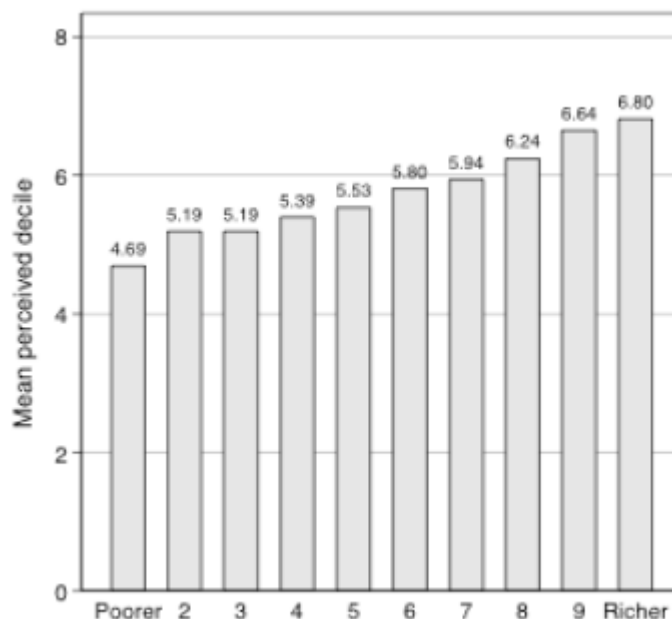
Graph 36: Distribution of self-perceived income decile and actual income decile



Source: Fernandez-Albertos and Kuo 2013

A clear trend is displayed by Fernandez-Albertos and Kuo work: Spanish individuals tend to estimate themselves more among the middle of the distribution than they really are, and that misperception is way more marked at the edges. Indeed, among the persons interviewed, around only 1% perceived themselves among the first decile of the income distribution, whereas the actual percentage is located around 7.5%. On the other hand, the perception percentage for the top decile is approximately the same, whereas the actual level is located around 9%. The results of Fernandez-Albertos and Kuo led them to notice that only 15% of the participants were able to estimate themselves in the right category of income decile (up to 40% if a tolerance margin of 1 decile above or below the correct one is applied), 40% of them are poorer than they believe (with an average mistake of 2.7 deciles), and 45% are richer than they believe (with an average mistake of 2.3 deciles). *“poorer individuals are likely to perceive themselves to be richer than they are, and richer individuals are likely to perceive themselves as poorer than they actually are”*.

Graph 37: Average perceived decile by income group



Source: Fernandez-Albertos and Kuo 2013

Graph 37 displays the mean self-placement for each income decile and supports the findings of the previous graph, that is to say that people in general estimates themselves more in the middle of the income distribution. Furthermore, we observe that this misperception is not related to a particular group of income earners, but that it affects most of the categories (apart from the 5th and 6th decile which average perception is correct if we apply the tolerance margin). It is to be noted that mean

perception by income decile is increasing linearly: as Spanish gets richer, their mean self-placement is growing, but the gap between own perception and reality is still significant. Indeed, the bottom 50% perceive themselves in average between the 4th and the 5th decile, whereas the top 10% is estimating themselves among the 6th deciles.

As Gimpelson & Treisman (2015) and Fernandez-Albertos & Kuo (2013) have shown, ordinary people know very little about the evolution of income inequalities and even where they fit in the income distribution, and it can become a concern when these misperceptions create social tensions and lead to political measures based on mistaken beliefs, as Gimpelson & Treisman (2015) put ahead that “*the perceived level of inequality—and not the actual level—correlates strongly with demand for redistribution and reported conflict between rich and poor*”.

5 Results and Discussion

5.1 Comparison between France and Spain.

That last part will treat about comparing the finding of the practical part in order to determine if similar phenomenon can be identified. When we compare the income inequality situation of France and Spain, we first notice that its GINI index evolution did not follow the same path. France's index evolution can be cut in three phases: first, it has been growing marginally during the late 1990s / early 2000s, before even dropping significantly due to good employment condition. Second, the financial crisis struck the country and shifted the index upward dramatically. Third, as the economy restored and the country was getting back on its feet, income inequalities have been decreasing slowly but surely, trying to catch up its pace of the pre-crisis and achieving a GINI index of below 32%. On the other hand, Spain is another kettle of fish. The high unemployment rate the country is dragging unfortunately implies higher income inequality within the country, and the late opening of its economy due to the Francoist Spain is no stranger to it all. In contrary to France, Spain does not have distinct phases: the opening economy and the EU integration in the 1980s/1990s reduced the income gap at first, before the short recession of the Black Monday cancelled the previous efforts. This is in conformity with the founding of (Pijoan-Mas & Sánchez-Marcos, 2010). After that, the GINI index of Spain will keep rising, punctuated by a property "collective madness" that creates rollercoasters among the curve, before the great recession the country entered following the crisis stop the game and sink Spain into its highest level of income inequality, to which, appositely to France, the country will not (yet) recover.

It is interesting to note that the growth of the GINI index is more significant for France than it is for France: indeed, between 1990 and 2019, France's index grew of 7.82%, compared to a 6% increase for Spain. These data highlight that the economic turmoil the world faced in 2007 did not impact every countries equally, and as told in the previous part, the GINI index of Spain during the financial crisis even fell before stagnating / increasing marginally. The report of the World Inequality Database of 2018 (written by Alvaredo & al.) also comes along that way, and whereas it focuses on wealth inequalities instead of income inequalities, also find out that the financial crisis of 2007 also had "*a neutral effect*" on wealth inequality. As I mentioned in the Spanish case study, the reason we witness such a difference on the impact of the financial crisis between these two countries is that

compared to Spain, France housing prices did not soar drastically over the last years, which means that when the crisis struck, value of properties stayed more or less the stable and therefore creating a huge gap between the wealthiest benefiting from ownership, and the poorest, whereas Spain's property collapse unavoidably impacted housing prices.

Moving forward into the evolution of the income shares, it has evolved significantly for both countries over the years, but in 2017, we observe that the income shares of the different category of earners are quite similar to each other. Indeed, for France, the top 1% represented 11.2%, the top 10% amounted to 33%, the middle 40% to 44.6% and the bottom 50% to 22.4%. On the other hand, for Spain, the top 1% represented 11.9%, the top 10% reaching 34.9%, a middle class at 44.2% and the bottom 50% to 20.9%. The income share differences of the categories of earners between the two countries are ranging from 0.4 to 1.9 points, and as the GINI Index might indicate, the top earners in Spain are owning a larger income share than the ones from France, but the overall repartition is really alike.

However, the most interesting finding is that in both France and Spain, that evolution of the income distribution in our modern history translated a better-off of the top 1% and 10%, as well as the bottom 50%, to the detriment of the middle-class. Indeed, we have seen that in Spain between 1980 and 2017, the income shares of the top 1% grew of 25.26%, the top 10% of 5.44%, and the bottom 50% of 1.88%, while the middle class declined of -3.07%. Next in order, between 1992 and 2017, the income share of the French top 1% earners jumped of 30.23%, the top 10% increased of 5.1% and the lowest 50% rose of 2.75%, whereas the middle 40% share decreased of 4.7%. These finding lets us think that the shrinking middle class is not necessarily an isolated phenomenon, but a recurrent effect in our modern economies. As it was the case for France, we can reasonably assume that the increase of the top 10% income shares has been mainly driven by the surge of the top 1%. Moreover, the shift of the former middle class to the lowest 50% might also be considered for Spain, even though the economic turmoil does not translate it as clearly as it was for France, the different phases of growing average income matches partly with a decreasing middle class to the profit of the bottom 50%.

That preoccupying situation is also put ahead by economic authors or organizations. In a report called "*Under Pressure: The Squeezed Middle Class*" published in May 2019, the OECD alarms that,

as various factors such as technology, global competition, education, housing prices etc. are nowadays harming many middle class careers, the “*middle-skill workers are now more likely to be in the lower-income class and less likely to be middle income*“. In addition, the OECD calculated that 14% of those in the middle-income brackets in their country are likely to fall into the bottom fifth in any given four-year period, which support our hypothesis that the income shares changes witnessed in France and in Spain concerning the middle 40% and the lowest 50% are caused by a proportion of the now former middle class shifted to the lower class. That situation is also addressed in the United States, where income inequalities are skyrocketing, and particularly for the top 1% as we have seen on Graph 2 during literature review, up to the point “*that the shrinking of the middle class at the national level may no longer be the economic majority in the U.S*” says the Pew Research Center which in its paper noted that “*from 2000 to 2014 the share of adults living in middle-income households fell in 203 of the 229 U.S. metropolitan areas examined in a new Pew Research Center analysis of government data*”.

The fact that the bottom 50% are gaining income shares is a good thing, but doing so through the drop of the middle-class whereas most of the benefits are redirected mainly to the top 1% is concerning and unviable, and would crunch the “social hierarchy” if the issue is left unaddressed. The decline of the middle-class is becoming more and more visible each day, and unfortunately it does not seem to be an isolated phenomenon, but a sad reality that might affect most of our modern economies. This situation does not happen just in France or Spain but in other countries as well (Desdoigts & Jaramillo, 2019; Schettino & Khan, 2020) and has to be taken seriously by governments and economic actors as the middle-class represent the heartbeat of a country’s economy, and a stable consumer base that drives productive investments.

“A strong and prosperous middle class is crucial for any successful economy and cohesive society. The middle class sustains consumption, it drives much of the investment in education, health and housing and it plays a key role in supporting social protection systems through its tax contributions. Societies with a strong middle class have lower crime rates, they enjoy higher levels of trust and life satisfaction, as well as greater political stability and good governance”

Under Pressure: The Squeezed Middle Class, OECD Report, 2019.

6 Conclusion

Throughout that thesis, we have seen that income inequality trickle from various factors: globalization, capitalism & free-market, skill-biased technological change & education, gender (and other which I did not dig into) and that some of these factors are even the foundations of our modern economies and societies. Assessing the consequences revealed to be not as one sided as what we could think of when it comes to income inequality, and we observed that it was also not strictly related to economic consequences, but that large social facets could be impacted and promote social erosion, especially when people's misperception of income inequality comes into the equation. Understanding why we care about income inequality was a primordial objective of that thesis because the reasons are not as clear as what we could think of before diving into the subject: whereas income inequality has an important weight on individuals' welfare since we tend to define it as a token of success, it also has been a necessary condition of innovation through the operation of our modern world, making it an important point of debate and a brain-breaker for economists.

Practical analysis of France and Spain allowed us to display factual evidence of those causes, as for example the effect of gender & skill-biased technological change on income inequality through the unemployment rate, but it also more importantly displayed the sad fact that the negative effects of income inequality during the last decades affected mainly the middle-class. Indeed, in both analysis, an overtime comparison showed that from the four different categories of income earners, only the middle class were getting worse-off in the income distribution evolution, and that the stagnation of that social class was creating a down shift of people toward the lowest 50%, as they were the only category not benefiting from the overall enrichment of the society. Furthermore, that shrinking middle class being present in both our analysis of France & Spain, it indicated that this was not an isolated phenomenon but suggested it as a possible recurrent event in our modern economies.

To conclude, income inequality is a topic that will continue to be investigated by economists and economic actors, and its causes will continue to be argued and refined in further literature and discoveries. That thesis present obvious limits, as only pre-tax income inequality is analysed and that the analysis is focusing on France and Spain to which it cannot be considered as a representative model of other countries. However, it brings tracks that could potentially be followed for further

investigation in these other countries, and addresses the original objective of the thesis which was for the readers to understand what is income inequality, how it evolved, and what are its consequences.

7 References

- Acemoglu, Daron & Robinson, A. James, 2000. “Why did the west extend the franchise? Democracy, Inequality, and Growth in historical perspective”. *The Quarterly Journal of Economics*, Volume 115, Issue 4, pages 1167–1199, <https://doi.org/10.1162/003355300555042>
- Aghion, Philippe & Cetto, Gilbert & Cohen, Elie & Pisani-Ferry, Jean, 2007. “Les leviers de la croissance française.”.
- Alvaredo, Facundo & Saez, Emmanuel, 2009. “Income and Wealth Concentration in Spain From A Historical and Fiscal Perspective”. *Journal of the European Economic Association*, Volume 7, Issue 5, pages 1140–1167, <https://doi.org/10.1162/JEEA.2009.7.5.1140>
- Autor, H. David & Katz, F. Lawrence & Krueger, B. Alan, 1997. “Computing Inequality: Have Computers Changed the Labor Market?” *Quarterly Journal of Economics*, Vol. 113, no. 4: 1169-1214.
- Autor, H. David & Katz, F. Lawrence, 1998. “Changes in the Wage Structure and Earnings Inequality”. *Quarterly Journal of Economics*. Volume 113, pages 1169-1213.
- Autor, H. David, May 2014. “Skills, Education and the Rise of Earnings Inequality among the “Other 99 Percent””. *Science* 344, no. 6186 (May 22, 2014): 843–851.
- Baudchon, H el ene, 2015. “France: unemployment, a deep- rooted problem”. *Conjoncture* February 2015.
- Borjas, G. & Ramey, V., 1994. “The relationship between wage inequality and international trade”. *Contributions to Economic Analysis* Volume 223, 1994, Pages 217-241
- Bound, John & Johnson, E. George, *American Economic Review*, 1989. “Changes in the structure of wages during the 1980's: an evaluation of alternative explanations”. *American Economic Review*, 82: 371-92, June 1992.
- Bresnahan, Timothy F., *Computerization and Wage Dispersion: An Analytical Reinterpretation* (August 1997). Stanford University Working Paper No. 97-031, Available at SSRN: <https://ssrn.com/abstract=68992> or <http://dx.doi.org/10.2139/ssrn.68992>
- Caccavello, Giovanni, Austrian Economic Center, January 2019. *Inequality, Poverty, “The Free Market” and Capitalism: the story of a wonderful success”*.
- Card, David & DiNardo, E. John, *Journal of Labor economics*, 2002. “Skill-Biased Technological Change and Rising Wage Inequality: Some Problems and Puzzles”. *Journal of Labor Economics*, 2002, v20(4,Oct), 733-783.
- Dabla-Norris, Era & Kochhar, Kalpana & Suphaphiphat, Nujin & Ricka, Frantisek & Tsounta, Evridiki, IMF report, June 2015. “Causes and Consequences of Income Inequality: A Global Perspective”.
- Darvas, Zolt, Bruegel, April 2018. “Global income inequality is declining – largely thanks to China and India”. On-line: <https://www.bruegel.org/2018/04/global-income-inequality-is-declining-largely-thanks-to-china-and-india/> (15.3.2020)
- Desdoigts, A., & Jaramillo, F., 2019. “Bounded learning by doing, inequality, and multi-sector growth: A middle-class perspective”. *Review of Economic Dynamics*, Elsevier for the Society for Economic Dynamics, vol. 36, pages 198-219, April
- Doms, Mark & Dunne, Timothy & Troske, R. Kenneth, 1997. “Workers, Wages, And Technology”. *The Quarterly Journal of Economics*, 1997, vol. 112, issue 1, 253-290
- Dumke, Rolf, 1991. “Income Inequality and Industrialization in Germany 1850–1913” in “Income Distribution in Historical Perspective”.
- Dunne, Timothy & Schmitz, James A. Jr., 1995. “Wages, Employer size-wage premia and employment structure: their relationship to advanced-technology usage at U.S. Manufacturing establishments”. Working Papers 92-15, Center for Economic Studies, U.S. Census Bureau.

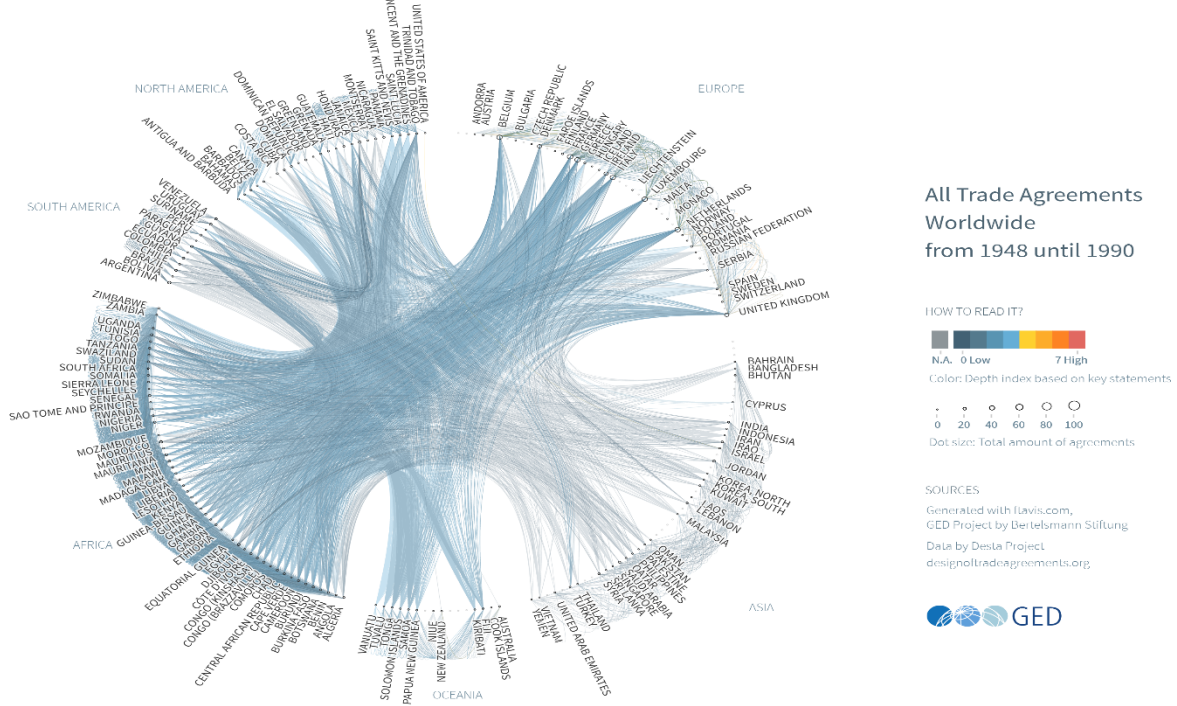
- Feldstein, Martin, 1998b. ““Overview.” Introduction to the Federal Reserve Conference on Income Inequality: Issues and Policy Options, Symposium Proceedings.”.
- Fernandez-Albertos, José & Kuo, Alexandre, September 2013. “Income Perception, Information, and Progressive Taxation: Evidence from a Survey Experiment”.
- Frost, Benjamin, Korn Ferry Hay Group, 2017. “The Gender Pay Gap: Myth Vs. Reality... And What Can Be Done About It.”.
- Gimpelson, Vladimir & Treisman, Daniel, May 2015. “Misperceiving Inequality”. *Economics & Politics*, vol 30(1), pages 27-54.
- Henderson, R. David, Stanford University, February 2018. “Income Inequality isn’t the problem”. On-line: <https://www.hoover.org/research/income-inequality-isnt-problem> (25. 2. 2020)
- Herman, M. Alexis, U.S. Department of Labor, 1999. “Report on the American Workforce”. On-line: https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1072&context=key_workplace (12. 1. 2020)
- Hodgson, M. Geoffrey, *Evonomics*, August 2016. “How Capitalism Actually Generates More Inequality”.
- Inequality.org, 2018 / 2019. “Income Inequality in the United States”.
- Institute for Women's Policy Research, March 2015. “The Status of Women in the States: 2015 — Employment and Earnings”. On-line: <https://statusofwomendata.org/wp-content/uploads/2015/02/EE-CHAPTER-FINAL.pdf> (28. 12. 2019)
- Janmaat, Jan Germen, Cambridge University Press, December 2013. “Subjective Inequality: a Review of International Comparative Studies on People’s Views about Inequality”.
- Johnson, E. George, *Journal of Economic Perspectives*, 1997. “Changes in Earnings Inequality: The Role of Demand Shifts”.
- Keeley, Brian, OECD Publishing, 2015. “How does income inequality affect our lives?”
- Keller, Wolfgang & Olney, W. William, NBER Working Paper, May 2017. “Globalization and Executive Compensation”.
- Kennedy, P. Bruce & Kawachi, Ichiro & Prothrow-stith, Deborah & Lochner, Kimberly & Gupta, Vanita, 1998. “Social Capital, Income Inequality, And Firearm violent Crime”. *Social Science & Medicine*, Volume 47, Issue 1, 1 July 1998, Pages 7-17
- Keynes, John Maynard, 1919. “The Economic Consequences of the Peace”.
- Krueger, Alan, 2012. “The Rise and Consequences of Inequality”. On-line: https://pages.wustl.edu/files/pages/imce/fazz/ad_10_1_krueger.pdf (28. 12. 2019)
- Krueger, Alan, 1993. “How computers have changed the wage structure: evidence from microdata”.
- Krugman, Paul & Venables, J. Anthony, Oxford University Press, November 1995. “Globalization and the Inequality of Nations”. *The Quarterly Journal of Economics*, Vol. 108, No. 1 (Feb., 1993), pp. 33-60
- Krugman, Paul, Bloomberg Opinion, October 2019. “What Economists (Including Me) Got Wrong About Globalization”.
- Krugman, Paul, March 2018. “Globalization: What Did We Miss?”. On-line: https://www.gc.cuny.edu/cuny_gc/media/liscenter/pkrugman/pk_globalization.pdf (16. 1. 2020)
- Krusell, Per & Ohanian, E. Lee & Ríos-Rull, José-Víctor & Violante, L. Giovanni, 2000. “Capital-skill complementarity and Inequality: A Macroeconomic Analysis”. *Econometrica* Volume68, Issue5, Pages 1029-1053
- Kuznets, Simon, 1955. “Economic growth and income inequality”.
- Lee, Jong-Wha, Australian National University, May 2016. “China’s Economic Growth and Convergence”. CAMA Working Paper No. 30/2016, 54 Pages.

- Leung, May, Seven Pillars Institute, January 2015. “The causes of Economic Inequality”. On-line: <https://sevenpillarsinstitute.org/causes-economic-inequality/> (15.2.2020)
- Macchia, Lucia & Plagnol, C. Anke & Powdthavee, Nattavudh, Harvard Business Review, November 2019. “Why Do People Tolerate Income Inequality?”. On-line: <https://hbr.org/2019/11/why-do-people-tolerate-income-inequality> (3.12.2019)
- Mankiw, N. Gregory. (2013) “Defending the One Percent”. , Journal of Economic Perspectives, Summer 2013
- Maria, Avram Emanuela, January 2011. “The Main Reasons Underlying Personal Investment In Education”. *Management & Marketing* IX(2):356-364
- Martin, Delphine, France Bleu Auxerre, May 2018. “Pourquoi les femmes gagnent-elles moins que les hommes ?”.
- Mijs, Jonathan J.B, January 2019. “The Paradox of Inequality: Income Inequality and Belief in Meritocracy go Hand in Hand”. *Socio-Economic Review*, mwy051, <https://doi.org/10.1093/ser/mwy051>
- Milanovic, Branko, 2007. “Why We All Care About Inequality (But Are Loath to Admit It)”. <http://dx.doi.org/10.2139/ssrn.530363> (6. 1.2020)
- Milanovic, Branko, 2018 “Why Inequality Matters?”. *Global Policy Journal*, December 2018
- Muller, Z. Jerry, 2013. “Capitalism and Inequality: What the Right and the Left Get Wrong”. *Foreign Affairs*, March 2013
- Noah, Timothy, 2017. “The Dead Are Wealthier Than The Living: Capital In The 21st Century”. *Pacific Standards*, June 2017.
- Nordhaus, D. William, April 2004. “Schumpeterian Profits In The American Economy: Theory And Measurement”.
- OECD, 2004. “Income Disparities in China: an OECD perspective.”.
- OECD, Economic surveys, 2019. “France overview”.
- OECD, May 2019. “Under Pressure: The Squeezed Middle Class”.
- Okun, Arthur, 1975. “Equality and Efficiency: The Big Tradeoff”.
- Pettinger, Tejvan, Economicshelp, June 2014. “Inequality and Capitalism”.
- Pew Research Center, 11 May 2016. “America’s Shrinking Middle Class: A Close Look at Changes Within Metropolitan Areas”.
- Pijoan-Mas, J., & Sánchez-Marcos, V., 2010. “Spain is different: Falling trends of inequality. *Review of Economic Dynamics*”. *Review of Economic Dynamics*, Volume 13, Issue 1, Pages 154-178
- Piketty, Thomas, April 2014. “Capital in the 21st Century”.
- Piketty, Thomas, 2003. “Income Inequality in France, 1901–1998“. *Journal of Political Economy*, 2003, vol. 111, issue 5, 1004-1042
- Roser, Max & Nagdy, Mohamed, 2020. “Returns to Education”.
- Roser, Max & Ortiz-Ospina, Esteban, 2020. “Global Education”.
- Sala-i-Martin, Xavier, 2002. “The Disturbing "Rise" of Global Income Inequality”. NBER Working Paper, April 2002
- Schettino, F., & Khan, H. A., 2020. “Income polarization in the USA: What happened to the middle class in the last few decades?“. *Structural Change and Economic Dynamics*, Volume 53, June 2020, Pages 149-161
- Subramanian, Arvind & Kessler, Martin, 2013. “The Hyperglobalization of Trade and Its Future”. Peterson Institute for International Economics, July 2013.
- The Economist, August 2017. “Are women paid less than men for the same work?”.

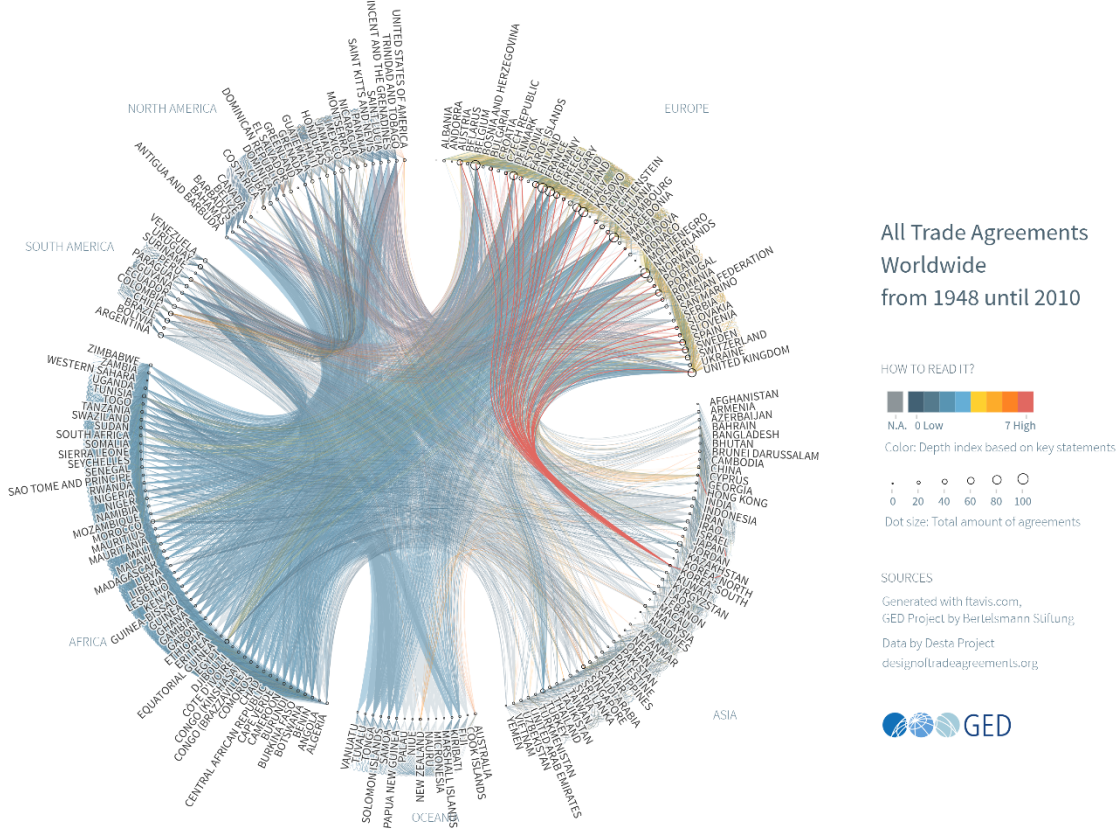
- The Economist, July 2017. “The wage gap between men and women varies depending on job types”.
- Tornabell, Robert, *The Guardian*, June 2012. “Spain's 90s greed is at the root of its banking crisis”.
- Weiss, Matthias, March 2004. “Skill-Biased Technological Change: Is there Hope for the Unskilled?”.
- Wikipedia the free encyclopaedia, 2020. “Economic history of the United Kingdom”.
- Wikipedia the free encyclopaedia, 2020. “Kuznets Curve”.
- Wilkinson, Richard & Pickett, Kate, 2009. “The Spirit Level: Why More Equal Societies Almost Always Do Better”. *Local Economy* 24(8):705-706
- Williamson, E. Oliver, 1985. “The Economic Institutions of Capitalism”.
- Xie, Yu, 2010. “Understanding Inequality in China”. *Chin J Sociol.* 2016 Jul; 2(3): 327–347.

Appendix











Appendix 1: All Trade Agreements from 1948 to 1990



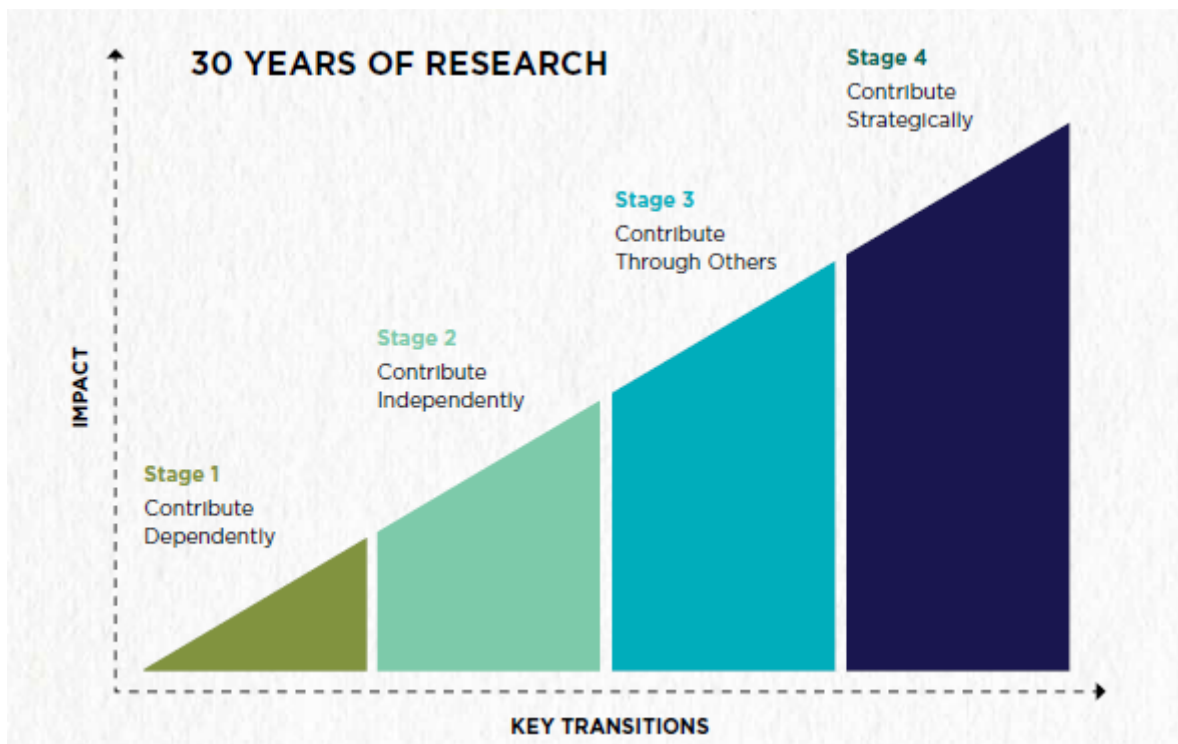
Appendix 2: All Trade Agreements from 1948 to 2010



Appendix 3: 2015 College Return on Investment Report: Best Value Colleges in the US – PayScale

Rank	School Name	20 Year Net ROI	Total 4 Year Cost	Graduation Rate	Typical Years to Graduate	Average Loan Amount
1	 Harvey Mudd College (Private)	\$985,300	\$237,700	91%	4 Years	\$21,920
2	 California Institute of Technology (Caltech) (Private)	\$901,400	\$221,600	93%	4 Years	\$22,160
3	 Stevens Institute of Technology (Private)	\$841,000	\$232,000	79%	5 Years	\$44,000
4	 Colorado School of Mines (In-State)	\$831,000	\$112,000	70%	5 Years	\$30,480
5	 Babson College (Private)	\$812,800	\$230,200	91%	4 Years	\$31,880
6	 Stanford University (Private)	\$809,700	\$233,300	96%	4 Years	\$29,880
7	 Massachusetts Institute of Technology (MIT) (Private)	\$798,500	\$224,500	93%	4 Years	\$33,680
8	 Georgia Institute of Technology (In-State)	\$796,300	\$86,700	82%	5 Years	\$30,600
9	 Princeton University (Private)	\$795,700	\$217,300	97%	4 Years	\$17,040
10	 Colorado School of Mines (Out-of-State)	\$771,000	\$172,000	70%	5 Years	\$30,480

Appendix 4: The Four Stages of Contributions



Appendix 5: The Four Stages of Contributions

STAGE 1: Contribute Dependently

You're new to the job or in the workforce so you need the help of others.

STAGE 2: Contribute Independently

You've gained technical expertise and can get results with less supervision. You're building your credibility and networks.

STAGE 3: Contribute Through Others

You're a manager, team leader or mentor and use what you know to stimulate others. You have a broad business perspective.

STAGE 4: Contribute Strategically

You're involved in setting the organization's direction, spotting and developing business opportunities and mentoring potential leaders.

Appendix 6: Top 0.01% Income shares in Spain

