CATÓLICA LISBON
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THE GRIP OF USA's HEALTHCARE SYSTEM AGAINST THE DIMENSION OF THE FOOD INDUSTRY

How obesity is becoming unstoppable

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Abstract

This Thesis aims to understand the relation between the food and healthcare industries, in order to perceive if any (or both) of these groups might have some hidden interest in preserving the current obesity's worrying scenario, threatening both USA's and the rest of the world's economy, well-being and integrity.
By having a systematic review of 57 modelling and database studies, one learnt that the healthcare system reform didn't ease down the expenses from treating obesity and related diseases, but instead turned them into a public expense. The lost productivity caused by obesity costs to employers already $73.1 billion per year, while the medical costs are expected to justify 16–18% of USA healthcare expenses by 2030, all these becoming unsustainable for the taxpayers. The obesity problematic has been growing since 1970's, due to subsidies that support the overproduction of corn, but today is turning huge due to the access to higher quantities of cheaper food that the high-fructose corn syrup (HFCS) facilitates. One concluded that are not the health decision-makers who intend to maintain this situation, but food lobbyists like Monsanto Corporation that, together with the energy industry, are building a monopoly too powerful to fight against.
Thus, more papers like this should be developed to increase people's awareness and to grow the strength of those who truly support the sustainability of the public health and the economy, both of USA and the rest of the world.

Resumo

Esta Tese tenciona compreender a relação entre as indústrias da saúde e da alimentação, de forma a perceber se alguma destas (ou ambas) terão interesses ocultos em preservar o preocupante cenário causado pela obesidade no presente, que ameaça não só a economia, bem estar e integridade dos EUA, como do resto do mundo.
Ao elaborar uma revisão sistemática de 57 estudos modelo e experimentais, foi possível aprender que a reforma do sistema de saúde não suavizou as despesas resultantes do tratamento da obesidade e suas comorbilidades, mas tornou-as uma despesa pública. A perda de produtividade causada pela obesidade já custa aos empregadores $73.1 biliões por ano, enquanto que os custos médicos são previstos justificar 16-18% das despesas totais em saúde nos EUA em 2030, tornando-se insustentáveis pelos contribuintes. A problemática da obesidade tem vindo a crescer desde a década de 1970, consequente dos subsídios que apoiam a produção excessiva de milho, mas actualmente atingiu dimensões exponenciais devido ao fácil acesso a maiores quantidades de comida mais barata, que o xarope de milho rico em frutose (HFCS) possibilita. Foi possível concluir que não são os responsáveis na área da saúde que têm interesse em manter esta situação, mas sim lobistas na indústria alimentar como a Corporação Monsanto que, em conjunto com a indústria energética, estão a construir um monopólio demasiado forte para enfrentar.
Assim, deveriam ser realizados mais trabalhos com o mesmo intuito desta Tese, de forma a consciencializar a população e tornar mais possível a sustentabilidade da saúde pública e da economia, tanto dos EUA como do resto do mundo.

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My passion for this subject was my main inspiration, and since the beginning I had the will to aware people for a problematic that is so important and that, even though we face it so regularly and we might think we have everything under control, it can take really undesirable dimensions in the future.

Furthermore, even if the theme is recurrent and appealing to debate, the one who conducted me through the so many questions, the one who didn't let me step aside my goal, and helped to run straight to it, was my supervisor, Susana Frazão Pinheiro, not only by having the amazing seminar of Healthcare Management, but by making her students feel that each and every one has the most special idea.

List of Exhibits

Abbreviations

USA – United States of America

HFCS – High-fructose corn syrup

EUA – Estados Unidos da América

GDP – Gross Domestic Product

UK – United Kingdom

OECD – Organisation for Economic Co-operation and Development

ACA – Affordable Care Act

CEO – Chief executive officer

USDA – United States Department of Agriculture

GMO – Genetically modified foods

FDA – Food and Drug Administration

RBGH – Synthetic Bovine Growth Hormone

NSDA – National Soft Drink Association

EWG – Environmental Working Group

BMI – Body Mass Index

I – Introduction

Since the beginning of the millennium, the USA healthcare system has been subject of much polarizing debate and pointed out several times as a possible contributor for certain economic and financial crisis that the country has been through, as in fact happened before, in the 1970 decade (Kelton 2007). The hard reality is that, in 2003, USA was the country spending more on healthcare within the Organisation for Economic Co-operation and Development (OECD), presenting an expense of 15% of its Gross Domestic Product (GDP) – which is overwhelming compared to the OECD average of 8.6% (Chua 2006). On top of that, USA's portion of GDP is expected to grow to 20% in 2020 (Kumar and Blair 2013), and yet is still pointed out to be a country that presents a high proportion of people who are uninsured, irregular quality on the medical services delivered, and administrative waste (Chua 2006). Two demonstrative examples of these issues are the fact that around 46 million people lacked of health insurance in 2007 in USA, while firms could not handle the high health costs incurred by its employees, explaining 62% of the total number of bankruptcies (Kotecha 2009).

These high costs are caused by the non-existence of a centralized price setting mechanism (which President Barack Obama tried to change by implementing a Reform and broadening Medicaid coverage), but especially by the medical costs of treating chronic diseases that have been emerging exponentially linked to the rise of obesity levels in USA (Pollan 2008). Obesity has been achieving a frightening dimension over the population and USA has already the highest obesity and overweight rates amongst all of the developed nations (Tsai, Williamson, and Glick 2011) . According to the (Harvard School of Public Health 2015a), "roughly two out of three U.S. adults are overweight or obese (69 percent) and one out of three are obese (36 percent)", and if trends don't change, basically half of all men and women will be obese in the USA by 2030. Wang et al. (2011) even adds that there will be more 65 million adults presenting obesity in USA by 2030, "accruing an additional 6–8.5 million cases of diabetes, 5.7–7.3 million cases of heart disease and stroke, 492000–669000 additional cases of cancer" both in USA and United Kingdom (UK) together, numbers that have huge health and economic consequences: by 2030 it is expected that 16-18% of the total USA healthcare expenses are related to the treatment of obesity and overweight comorbidities. In conjunction with the information above, the analogous rise in healthcare costs and obesity rates (Finucane et al. 2011; Daemmrich 2013) and the fact that obesity is the second factor with the highest social and economic impact in the USA (McKinsey&Company

2014) suggest that obesity is one of the major causes of unsustainability for the health care system.

This exponential growth of obesity is largely explained by the high levels of sedentariness present in many job positions due to an automation of procedures, by the decreased leisure time in terms of physical activity, but brutally by the nutrition habits changes that crossed the global society, specially the occidental cultures, where access to food is extremely (and dangerously) facilitated (Swinburn, Sacks, and Ravussin 2009). Nonetheless, if the government is interested in defending the country's economy, why are not more measures being taken to increase the physical activity adherence or, most importantly, to slow down the crescent bad nutrition habits? Is it possible that the government budget has too many constraints to implement new preventive policies, or perhaps there is someone who is profiting from this epidemic among the healthcare and food industries? Is it a coincidence that, while healthcare expenditure rose from 5% to 16% of national income, spending on food has fallen from 18% to less than 10% of household income (Pollan 2008)? Since 1970's, agribusiness policies were changed and became supportive of the overproduction of agricultural commodities (Wender 2011), including corn, which is at the top of the list of products that the government most heavily subsidizes, gathering in over $77 billion from the government between 1995 and 2010 (Mercola 2011). The most recurrent source of calories in USA, HFCS, is present in many processed food items, including diet food, 'enhanced' water products and even most infant formulas (Mercola 2011), and is definitely one of the main contributors for the present obesity levels (Bray, Nielsen, and Popkin 2004).

Then, why does not the government stop these federal subsidies, or alternatively subsidizes other kind of crops that contribute in a better way for the health of the American population? Is it possible that those who are behind the healthcare industry policies are somehow profiting with the increasing need for medical assistance caused by obesity, or perhaps the lobbying activity behind the food industry is just to strong to fight against? By answering these questions, the goal of this Thesis is to understand the relation between the food and healthcare industries, and to analyse if there are any additional interests that may be lying behind the obesity's worrying scenario, threatening both USA's and the rest of the world's economy, well-being and integrity.

To accomplish what this Thesis proposes to, one intends to collect a significant amount of secondary data in order to understand how the Healthcare system of the USA works and what changed with the Reform. Then, one expects to reveal and better explain several facts about the Food Industry, as it also wants to comprehend the increasing Obesity

situation, and why is this health condition so costly on the country's economy. Under the conclusion format, one aims to disclose what is the true reality behind the actual regulatory policies that are not being able to control the obesity epidemic and avoid its economical erosion, in order to expose this urgent subject and set a point of start for fighting this health (care) crisis in a near future.

II – Literature Review

1. The American Healthcare System

This chapter will focus on understanding the structure of the healthcare system before and after the Reform implemented by President Barack Obama, and will observe critically what reasons led to this retirement, and why was (or is) the USA healthcare system not working properly, mainly regarding the obesity crisis that the country is going through (which will be further discussed on the chapter of this Thesis "The struggling effect of Obesity costs in the Healthcare System").

The USA healthcare system is in the centre of a much diverging debate, especially after President Barack Obama declared that one of his uppermost priorities would be the reform of the American healthcare system (BBC News 2010). According to Chua (2006), "at one extreme are those who argue that Americans have the "best healthcare system in the world", pointing to the freely available medical technology and state-of-the-art facilities that have become so highly symbolic of the system. At the other extreme are those who berate the American system as being fragmented and inefficient, pointing to the fact that America spends more on healthcare than any other country in the world yet still suffers from massive uninsurance, uneven quality, and administrative waste".

The USA healthcare system is both comprised by private and public insurers as many other countries are, but what is exceptional about the USA system is that the private prevails over the public element (Chua 2006), which explains the general idea that "there is not a universal system of healthcare coverage" (BBC News 2010) or that, in USA, there is no National Healthcare System (Kotecha 2009). Besides, the care providers are mostly hospitals that are privately managed and physicians who are self-sufficient or work in small groups (Daemmrich 2013). This fragmented insurance system implies the non-existence of a centralized price setting mechanism that, together with the greater use of medical leading technology, allows higher health care prices and partly explains why was the USA the country with highest health care expenditures in 2012 (Allen 2014).

Public Health Insurance

The public insurers are programmes funded by the federal government, among which Medicaid is the biggest for those on low incomes or disabled, and Medicare for elderly over

65 years old. The less known are VA, for Military veterans, and S-CHIP which means State Children's Health Insurance Programme, and aims to cover "children whose parents do not qualify for Medicaid" (Chua 2006; BBC News 2010).

Private Health Insurance

In USA, the population obtains private health insurance in two different ways. Consumers can buy it directly, as around 25 million people did in 2008 (Pauly and Herring 2007; Bhattacharya and Sood 2011), or they can obtain it through their employers as part of the employment package, which is the most usual kind of insurance, covering around 180 million citizens in 2008 (Keenan et al. 2001). For the first option, insurers demand the payment of a regular premium, but occasionally citizens need to pay part of their treatment (known in the USA as a deductible) before the insurer covers the expense. The amount paid depends on the plan chosen (BBC News 2010): some schemes are cheaper and consequently only include basic treatments, so any extra procedure can represent an additional cost (Kotecha 2009). Regarding the second and most common insurance option, employee premium contributions usually adjust for family size, and rarely do for obesity or any other observable risk factor (Keenan et al. 2001). However, by not adjusting wages nor premiums based on body weight, firms who provide health insurance and hire only thin workers can make greater profits in a competitive industry (Bhattacharya and Sood 2011), due to the lost productivity caused by obesity (Wang et al. 2011; Finkelstein et al. 2010).

Despite the private and public health insurances available, nearly 46 million people in USA had no insurance in 2007, and what is more to concern is that, in 2009, it was thought that the figure's would continue to rise "as the country copes with a recession and many continue to lose their jobs" (Kotecha 2009). If someone has no health insurance and gets sick, it will not be turned away, but it will have to pay everything on its own at the end of the procedure (Kotecha 2009). People are allowed to pay treatment costs in portions if their financial circumstances are not the best, but expenses are still so high that leads individuals without insurance to "neglect their health because they don't have regular screenings and check-ups" (Kotecha 2009). Looking away from the individual perspective and referring to the employers point of view, Kotecha (2009) even adds that "62% of bankruptcies are caused by high health costs" that firms cannot handle.

The combination of both private and public insurance expenses led to a continual growth of healthcare expenditure in the USA: "in contrast to OECD countries that enacted policies contributing to a levelling of spending at between 10 and 12% of GDP, the United

States experienced unabated health cost growth" (Daemmrich 2013).

	1970	1980	1990	2000	2010
Canada	6.9	7.0	8.9	8.8	11.4
France	5.4	7.0	8.4	10.1	11.6
Germany	6.0	8.4	8.3	10.3	11.6
Japan	4.6	6.5	6.0	7.7	9.5
Switzerland	5.4	7.3	8.2	10.2	11.4
United Kingdom	4.5	5.6	5.9	7.0	9.6
United States	7.1	9.0	12.2	13.6	17.6

Exhibit 1- Total expenditure of public and private healthcare insurance (% of GDP)

Source: OECD Health Statistics

Looking at Exhibit 1, it is observable that while other OECD countries increased their portion of GDP allocated to healthcare expenses by around 5% between 1970 and 2010, the USA has managed to boost this raise by more than 10% in the same period (Daemmrich 2013).

The USA healthcare industry is a key part of the USA economy, as shown by the fact that USA spends a large fraction of its GDP on healthcare. This portion is progressively growing, up from 13.6% in 2000, 17.6% in 2010 (Daemmrich 2013), and estimated to rise to between 20%-22.5% by 2020 (Daemmrich 2013; Kumar and Blair 2013). Consumers need both food and healthcare, and these two industries can present similarities between each other. However, Kumar and Blair (2013) defend that the food industry is a very successful system, while the healthcare area presents substantial problems - these authors even explain that many of the healthcare cost problems are caused by the expensive treatments necessary to overcome or deal with certain chronic conditions that could be significantly prevented by having a healthier lifestyle.

Summing the problems of USA healthcare system being high costly – "as a nation, the USA spent some $2.2tn (£1.36tn) on healthcare in 2007" including private, federal and employer schemes (BBC News 2010) – to the low coverage that presents (Kotecha 2009), President Barack Obama strengthened its conviction of having a reform on the healthcare system of USA.

The Reform of USA Healthcare System

This reform took place on March 2010, after passing Congress, and it is called Patient Protection and Affordable Care Act (ACA) or "Obamacare". According to Kotecha (2009), all Republican Party representatives voted against it, as there were worries it would mean

higher taxes, and the changes would cost the USA government approximately $940bn over 10 years. On the other hand, "Democrats argued that every American must have insurance, employers should be required to help their employees pay for it, and the government should either create a new public insurance option or expand Medicare for citizens unable to afford private insurance" (Daemmrich 2013). The reforms have been under Obama's top priorities since he became a President, and thanks to those, around 32 million Americans more – mainly poor - will have healthcare coverage (Kotecha 2009). Some of the main principles were to be implemented by the end of 2014, "including the key requirement that every U.S. citizen carry health insurance, either through their employer, from a plan purchased privately, or through government-run Medicare, Medicaid, or Veteran's Administration programs" (Daemmrich 2013). Other major provisions of this reform are to forbid insurers from releasing patients in case of pre-existing conditions or defining a coverage limit (whether it is annual or of a lifetime), and to include young adults up to 26 years old on their parents' plans (Daemmrich 2013). Surprisingly, insurers accepted these stricter regulations, since a broader coverage was attractive to them: they understood that by having pools of younger and healthier individuals who tendentiously opted not to consume the coverage, they were likely to increase revenue and profitability (Daemmrich 2013).

However, private insurers were troubled by the creation of a public plan that could have the power to negotiate prices for care and "could then offer lower-priced plans to the public" – so, the lead trade association of health insurance, America's Health Insurance Plans, "began to lobby intensively against any public insurance option" (Daemmrich 2013). Similarly to insurers, the pharmaceutical industry was more found of the individual mandate and disliked the public insurance plans, as it publicly demonstrated in a June 2009 open letter to president Obama. Despite all this war and even though "no Republican in the House or Senate voted in favour of either final bill", on March 25th the Senate approved the reconciliation bill, after which the House passed it (Daemmrich 2013). "In 2012, a Supreme Court ruling affirmed the individual mandate and Medicare expansion, but allowed states to decide individually on broadening Medicaid coverage". So, under individual mandate, people can decide to acquire or not independent coverage, which generates "competitive pricing pressure among insurers" and also creates the opportunity of "free-market pricing of health services and products, including pharmaceuticals" (Daemmrich 2013). These measures will have an impact on the dimension and structure of the future prescription drug market as insured people take more medicine than those who have no health insurance, and "the insured also are written more prescriptions for higher-priced branded drugs, both because of physician

awareness of their insurance status and because of patients' requests for particular medicines" (Daemmrich 2013).

Impact of "Obamacare" in Healthcare costs

The major concern regarding this healthcare system reform is that Obama's idea of delivering a better organized service while lowering down the costs may not be accomplished, because as the ACA is implemented, baby boom generation reaches Medicare coverage age thresholds, and other individuals are able to purchase subsidized private insurance, so the total expenditure on national health will increase thanks to a broader insurance coverage (Daemmrich 2013). By 2015, around more 35 million Americans will have the right to be covered by Medicare, Medicaid, by their employer, or by acquiring coverage on a state-based exchange, while by 2020, an additional number of 14 million Americans "will join Medicare and an additional 10 million will have at least partial coverage under Medicaid" (Daemmrich 2013).

Although a larger coverage is a very attractive solution in social terms, (Daemmrich 2013) points out that, economically, this means the total health expenditure will rise exponentially and become unsustainable, even with some cost reduction realized through more efficient care.

Perhaps, the better way to make "Obamacare" have been worth, is to prevent people to need health assistance that much. As it will be explained on the last chapter of this Thesis, obesity comorbidities are the main causes responsible for high healthcare costs (McPherson 2008), so if prevention measures (either in the physical activity side or in the nutritional flank) can tackle this epidemic, perhaps healthcare costs burden can be levelled.

2. The other side of the problem: Food industry

In an era of advanced technology and medicine improvements it's curious how obesity levels have reached numbers never before seen. This fact is more than explained by the behavioural changes that crossed our society, specially the occidental cultures, where job positions demand high levels of sedentariness due to an automation of many procedures, leisure time is decreased in terms of physical activity as well, and access to food is extremely facilitated. Americans consume more energy than they did in the past: between 1970 and 2002 food supply grew by 500kcal/day in the USA, and these larger portions are encouraging people to eat more (Young and Nestle 2002; Wang et al. 2011). This chapter will focus on explaining why is the access to food dangerously eased nowadays and what are the policies around this fact that generate the differences between fast food and healthy food availability across the USA neighbourhoods.

Why is fast food so consumed?

It is important to understand the policies that allow fast food to be "cheaper", and consequently more consumed, contributing to the increasing obesity levels of the present (as it will be explored on the next chapter of this Thesis). Mercola (2011) highlights very well that "there's a common belief that healthy food is inherently more expensive, and thus can only be for the wealthy". People are aware that "it's typically cheaper to buy a loaf of bread than a pound of broccoli" and also "realize that they can get a value meal at numerous fast-food restaurants for far less money than it takes to purchase foods to make a healthy meal" (Mercola 2011). But people should understand why is bread or meat cheaper than vegetables, given that for growing a lettuce you only need water while growing a cow takes more resources than that. Instead of agricultural, the answer is more political, as agribusiness Chief Executive Officers (CEOs), "their lobbyists and the politicians in their pockets" who are responsible for government food subsidies, support the kind of foods the population should eat less for a healthier lifestyle (Mercola 2011). Before 1970's, USA had "supply management policies that restricted how much producers could grow" (Physicians Committee for Responsible Medicine 2015), to avoid extremely low prices of agricultural products, as it happened during the Great Depression (Samuelson 2002). However, when elected Secretary of Agriculture and heading United States Department of Agriculture (USDA) (1971-1976), Earl Butz drastically changed federal agricultural policy, favouring a massive production of

agricultural commodities (such as soybeans and corn) through subsidies, which coincided with the rise and growing success of major agribusiness, and with the worsening of small family farms' financial conditions (Wender 2011). Monsanto Corporation, founded in 1901 and perhaps the main agribusiness corporation nowadays, is one of those cases, even though it only started producing genetically modified (GMO) crops by 1995. They started by producing mainly soybeans, corn and BT cotton that tolerated Roundup, a toxic herbicide produced by them as well, advertising these crops "as being safer and healthier alternatives to their organic non-GMO rivals" (Hanzai 2014).

The agricultural industry and GMO markets engage important public wellbeing concerns (like for example, the food quality), which makes Monsanto really vulnerable when it comes to federal regulations that come mostly from the USDA and the Food and Drug Administration (FDA) – "if, such regulations are kept low, then corporations like Monsanto make a larger profit" (Sager 2012). Therefore, Monsanto has a lot to gain by controlling a considerable volume of the agro-business and GMO markets (Sager 2012), as it is possible to see in examples described more ahead, giving to the corporation more influence on the nutrition habits of the USA population than what we may think of. By looking at the illustrative examples of Monsanto's actions along this chapter, one was able to understand that this corporation is able to tackle down whoever goes against its principles, and invests on buying strategic points in the government, federal entities and other companies that allow it to change regulations on its behalf.

During the mid-1990's Monsanto spent billions on buying as many seed companies as possible all around the world, in order to convert them into terminator seed companies, with the final purpose of eliminating any rivals and organic foods (Hanzai 2014). According to the corporation, "all foods must be under their full control and genetically modified or they are not safe to eat!" (Hanzai 2014). Adding up to this fact, Monsanto wrote and sponsored The Food Safety Modernization Act of 2009: HR 875 along with other partners such as Archer Daniels Midland, Sodexo and Tyson Foods, which gave the corporation the power to control everything that grows food (including personal backyards) and the authority to provide severe penalties and send out to prison those who do not use fertilizers nor chemicals (Hanzai 2014). By having this Act signed, "Monsanto claims that only GM foods are safe and organic or homegrown foods potentially spread disease" and therefore must be extinguished for the world's protection. What is more incredible than the creation of this Act is the fact that the President Obama assumed this made sense and ended up approving it, signing the "provision that makes Monsanto above any laws and makes them more powerful than the government

itself" (Hanzai 2014). During Obama's legacy, the federal government has had several opportunities of passing legislation that would affect Monsanto. Instead, Obama's administration has been having a friendly attitude towards Monsanto, as it was shown in two very important federal initiatives: the 2010 African hunger plan and the 2012 Farm Bill (Sager 2012). The Southern Africa FY 2010 Implementation Plan intends to provide food for Africa, but unfortunately it gives loads of money to Monsanto and other agro-businesses, and implies the negative consequence of promoting the expansion of "industrial, mono-crop farming and genetically modified goods rather than investing in local farms". This way, Obama's administration facilitated Monsanto's ability to grow its earnings by receiving subsidies from the government, besides having the opportunity of smashing over African food markets (Sager 2012).

One of the reasons that explain the success of Monsanto is its ability to control over decision-making entities, which is achieved by, for example, "getting its representatives into positions within the US government", so that the individuals make public regulations favourable to the company (Sager 2012). Over the time, Monsanto has been able to incorporate its employees in very important roles at USDA and FDA, as shown in the picture displayed (Sager 2012; Bonnette 2013).

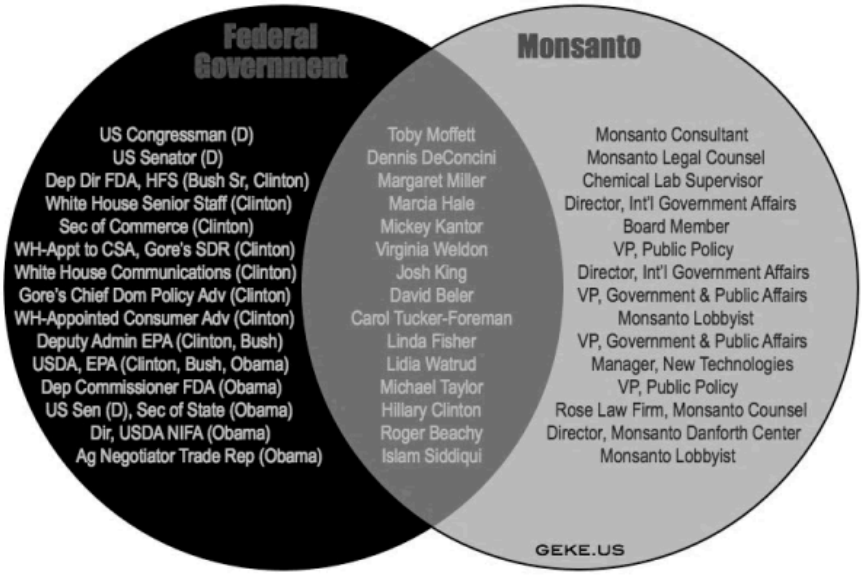

Exhibit 2 – The revolving door between Federal Government and Monsanto Corporation

Source: GlobalResearch

With this strategy, Monsanto Corporation is able to fight back quite more easily every regulation imposed by these entities that goes against its products, as it happened for example in 1994, when the FDA once again criminally approved the corporation's monstrosity of

using the "Synthetic Bovine Growth Hormone (rBGH), produced from a genetically modified E. coli bacteria" (Hanzai 2014). The corporation not only defended that "diseased pus milk, full of antibiotics and hormones" was good and safe for you, as it was able to sue any company that "refuse to use this toxic cow pus and label their products as "rBGH-free"" (Hanzai 2014).

To answer to the question that headed this subchapter (*Why is fast food so consumed?),* we should notice that Monsanto Corporation is "slowly" having its hands on some of the products that are more contributing to the rise of obesity levels nowadays, and that are also cheaper: meat (with growth hormone), coke, and corn (Hanzai 2014). The most caloric compound used in USA, HFCS, is present in numerous processed food items, "including diet foods and 'enhanced' water products. Even most infant formulas contain the sugar equivalent of one can of Coca-Cola" (Mercola 2011). HFCS is made from the crop that is mostly subsidized – which is corn. Corn is the first on the list of products that the government most heavily subsidizes gathering in over $77 billion from the government between 1995 and 2010 (Mercola 2011). Besides HFCS, most of the soybeans and corn grown in the USA are used for animal feed, fats (one of them being "soybean oil, which is a coproduct of feed production and makes up 69 percent of Americans' fats and oils intake) and ethanol" (Physicians Committee for Responsible Medicine 2015).

Given the relation between corn, HFCS and coke (The Guardian 2014), USA was the fourth country in the world consuming more Coca-Cola beverage products by 2012 (Statista 2015), which is a concerning fact since soft drinks are one of the biggest contributors for increasing obesity (The Guardian 2014; Harvard School of Public Health 2015c). Between 1970 and 1980, Monsanto together with the makers of Bayer aspirin produced a substance called aspartame, which FDA's scientific research announced to cause "tumours and massive holes in the brains of rats, before killing them" (Hanzai 2014). However, the corporation was able to persuade once again the FDA elements, and this substance goes into soft drinks as a sweetener. At the beginning, the National Soft Drink Association (NSDA) was afraid of suffering lawsuits from the consumers who would be drinking "the poison", but after a company partner of Monsanto (G.D. Searle) was able to show the addictive characteristics of aspartame, NSDA was convinced that skyrocketing profits from the sale of soft drinks laced with aspartame would easily offset any future liability" (Hanzai 2014). With that, corporate craving wins, beginning to poison Diet Coke drinkers with aspartame in 1983, while the unsuspecting soft drink' consumers pay for damaging their own health (Hanzai 2014).

These facts allow USA to better understand the manipulating power that Monsanto Corporation has over the food industry – unfortunately, Monsanto, the FDA and the USDA have become "one and the same" (Hanzai 2014). That is why although the *Dietary Guidelines for Americans* provided by USDA request people to reduce their intake of saturated fat and cholesterol, the foods that the government subsidies support go strongly against what is recommended for health (Exhibit 3), as these favour "the production of meat and dairy products that are the principal sources of these hazardous components" (Physicians Committee for Responsible Medicine 2015).

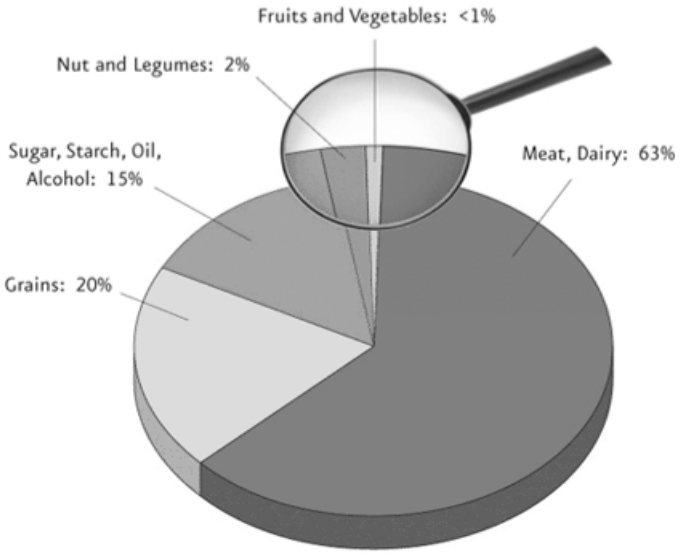

Exhibit 3 – The foods that subsidies support

Source: Physicians Committee for Responsible Medicine

Not everything is bad and Monsanto is not manipulating all subsidies, given that "some subsidy programs are intended to provide a safety net for agricultural producers in cases of low production or poor profitably due to weather, market price variations, and other factors" (Physicians Committee for Responsible Medicine 2015). What is strange is that not every producer receives subsidies in the USA, according to the farm subsidy database computed by the Environmental Working Group (EWG), where data from 2011 shows that 74% of all subsidies were collected by only 10% of farmers, "amounting to nearly $166 billion over 16 years", while 62% of USA farmers did not receive subsidy payments at all (Mercola 2011). This means that mega farms are the top recipients for commodity subsidies, and not the small farmers, who need funding the most. Having this said, the government is motivated to invest as a major player in the food business, since farmers profit from increased demand (Mercola 2011).

This situation has a major impact on the nutrition habits and obesity levels of the American population, as it creates "a negative feedback loop that perpetuates the highly profitable standard American diet". These fast food subsidies "make it much cheaper to buy a burger, fries and soda from a fast-food restaurant than it is to buy grass-fed beef and veggies" (Mercola 2011). So, the subsidies created a price difference that facilitates the selling of the junk food over the "nutritious-but-unsubsidized" healthy food - since the consumers under economic conditions of recession end up choosing the food that their taxes support - naturally facilitating the increase of obesity and health problems associated (Sirota 2011). If, on the other hand, there was an imposing of substantial taxes on fattening foods, Thow et al. (2010) show that an improvement in health parameters such as body weight and chronic disease risk would take place, which supports the "current recommendations that taxes and subsidies should be included as part of a comprehensive strategy to prevent obesity". L. M. Powell et al. (2013) suggested that raising prices of fast food would possibly influence weight outcomes, and found out that "lower fruit and vegetable prices were generally found to be associated with lower body weight outcomes among both low-income children and adults, suggesting that subsidies that would reduce the cost of fruits and vegetables for lower-socioeconomic populations may be effective in reducing obesity".

Then, why not subsidize healthy foods?

Why would a farmer choose to plant anything other than corn, if by having this crop, it is protected and ensured by the government, and gets paid back if the market prices change drastically? Unfortunately, it seems that the government is not so interested in subsidizing vegetables the same way it subsidizes corn, grain and pasteurized milk (Mercola 2011), and we know already that this is mostly a result of the influence that lobbyists from the food industry impose over the government. However, why do lobbyists choose to invest so much on these kinds of crops, and not on products that compose a light and healthy diet?

Perhaps the answer is in the energy industry, more specifically in the emerging interests on biofuels. "Biofuels are transportation fuels made from biological materials, including ethanol made from corn or sugar and biodiesel made from vegetable oil or waste fats" (Union of Concerned Scientists 2012). The interest and importance of biofuels have been growing due to environmental concerns regarding the ozone layer and greenhouse effect, mainly since the Energy Policy Act of 2005 and the Renewable Fuel Standard (RFS) program of 2006 (EPA 2005; EPA 2007). The first announced to provide "loan guarantees for entities that develop or use innovative technologies that avoid the by-production of greenhouse gases"

(EPA 2005), while the second established "the first renewable fuel volume mandate" in USA, which consisted on blending 7.5 billion gallons of renewable-fuel into gasoline by 2012 (EPA 2007). However, production requirements continue to increase until present, as the Energy Independence and Security Act (EISA) of 2007 demands an amount of 36 billion gallons by 2022 (EPA 2007).

In order to achieve those regulations, the primary sources of biofuels have been food crops, specially corn, sugar and vegetable oil (Union of Concerned Scientists 2012). This fact may be the answer to why not subsidizing healthier crops instead, since investing on corn seems to lead to higher profits due to its mutual importance and attractiveness in both food and energy industries. Corn lobbyists have been trying to increase their market share through their connections, revolving doors, and huge lobbying expenditures. In 2012, the corn ethanol industry spent $22.3 million lobbying before the USA Congress and federal agencies, as American Coalition for Ethanol spent a record $286,297 in 2012, and POET LLC, the largest corn ethanol producer in the USA, surpassed $1 million (Taxpayers for Common Sense 2013).

The problem of all this situation is that once again the lobbyists are not defending the interests of a better, healthier and greener world but yes preventing the use of cellulosic biofuel that comes from better energy crops like "perennial crops including tall grasses and fast-growing trees that can provide a large supply of biomass while reducing the environmental impact of intensively managed annual crops like corn" (Union of Concerned Scientists 2012). More problems than solutions are emerging from the use of first-generation sources of bioenergy (including sugarcane, corn and soy beans): increasing food prices and accelerating the global intensification of agriculture, along with its adverse environmental impacts (Foley et al. 2011). "Between 2000 and 2010, the share of the USA corn crop being used for ethanol grew from 6 percent to 40 percent", threatening other crops and land purposes, representing a rise of 5 million acres to 35 million acres of corn acreage (Union of Concerned Scientists 2012). This exponential growth is threatening forests, swamps and the quality of water in general, as the first ones are cleared and swamps are drained to make way for new crops. A huge amount of CO_2 is released into the atmosphere when forests are cleared, which questions how much will the climate benefit from substituting fossil fuels with biofuels (Union of Concerned Scientists 2012). Moreover, "the increased use of corn to make ethanol in the United States or rapeseed to make biodiesel in Europe accelerates the expansion of other crops in Brazil or Indonesia to make up for lost food production capacity" putting at risk the global food supply (Union of Concerned Scientists 2012). Besides the space needed,

corn acreage requires huge water volumes and extensive fertilization, adding loads of nitrogen and phosphorus into the water that runs off into lakes and streams, boosting algae growth that will drastically diminish the levels of oxygen needed by aquatic life (hypoxia) (Runge 2010).

With all the information above it seems that lobbyists have more than (wrong) reasons to invest in corn, and that is why it's going to be a long fight in order to have a food system reform that restricts this product again, and allows for a control over obesity levels.

Disparities in terms of availability of healthy food between neighbourhoods with different socio-economic status

On one hand, it's a positive fact that fast food is still not present everywhere, but on the other hand it's a very negative attitude to make advantage of poor people and implant the restaurants of fast food where consumers can not afford higher prices.

Research suggests that those who easily go to supermarkets and have a reduced access to convenience stores tend to have healthier eating behaviours and lower levels of obesity (Larson, Story, and Nelson 2009). High-quality products at lower prices tend to be found with higher variety in supermarkets, contrasting with convenience stores that sell in abundance caloric foods, mostly prepared, at higher prices (Glanz et al. 2007). "Given the research indicating that better access to supermarkets and large chain grocery stores contributes to healthier dietary patterns and reduced risk for obesity, neighbourhood disparities in store access are of concern". "Several U.S. studies have shown that residents of rural, low-income, and minority communities are most often affected by poor access to supermarkets, chain grocery stores, and healthful food products" (Larson, Story, and Nelson 2009). Besides food stores, restaurants can also present a risk to increase obesity, as there is no nutritional information available to help consumers make healthful choices (Wootan and Osborn 2006). By observing the acknowledged correlation between restaurant assiduity, dietary intake and obesity, Larson, Story, and Nelson (2009); Powell et al. (2007) and Sturm (2008) have shown that there are more fast food restaurants in neighbourhoods of lower-income, than in neighbourhoods of people with higher-income and predominantly white. Adding this to the fact that fast food restaurants can offer a higher quantity of food for a lower price, lower-income neighbourhoods tend to be more attracted to this kind of nutrition habits, which enhances the increasing obesity in people who live in the counties of poverty dominance (Levine 2011).

3. The dramatic evolution of Obesity in the American society: numbers and facts

Classification and Measurement of Obesity Levels

To address the issue of Obesity, we must first understand what it is and how most of the studies mentioned in this Thesis classify it. The World Health Organization (2015) defines overweight and obesity as an "abnormal or excessive fat accumulation that may impair health". To measure the relative size of an individual there is an index called Body Mass Index or Quetelet Index that was developed by Adolphe Quetelet between 1830 and 1850, which is calculated by "dividing the value of the mass of the individual by the square of its height's value", being the result given in units of kg/m^2. This method is a helpful tool to understand how far from a healthy norm is the verified body weight for a person of that height. Nowadays, there are many different classifications per categories of Body Mass Index (BMI), but the most common and international considers a person to be underweight if BMI<18.5, normal if 18.5<BMI<24.9, overweight if 25<BMI<29.9 and obese if BMI>30. Obesity is classified in three categories: Obesity Class I if 30<BMI<34.9, Obesity Class II if 35<BMI<39.9 and obesity Class III if BMI>40, which is also called Extreme Obesity or Morbid Obesity (National Heart Lung and Blood Institute 2015).

Global Figures

Collecting data from The Behavioural Risk Factor Surveillance System for the period of 1986-2005, it is possible to observe that, in USA, from 2000 to 2005 the prevalence of obesity (BMI>30) increased 24%, the prevalence of a BMI>40 increased by 50% and the prevalence of a BMI>50 increased by 75% (Sturm 2007). Considering the whole world, Finucane et al. (2011) found that approximately 500 million adults are obese (BMI>30), which is basically the double of

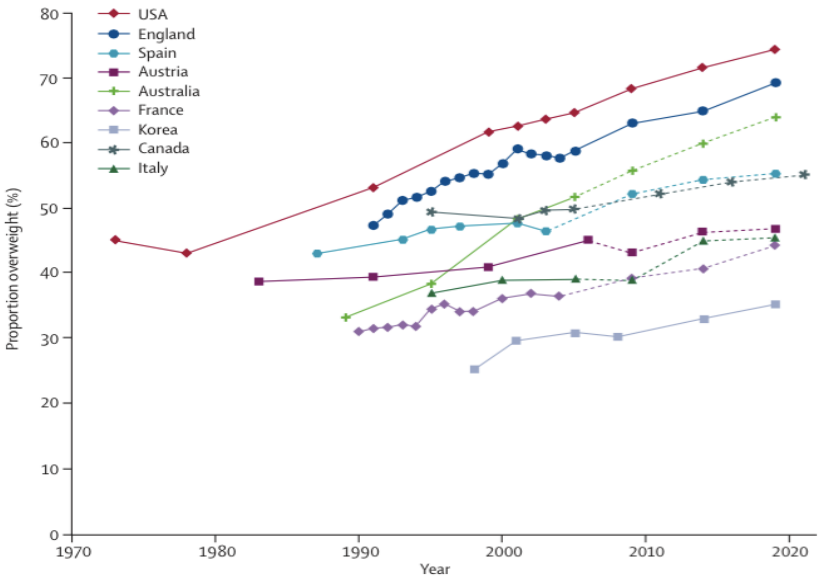

Exhibit 4 – Overweight's past and projected tendencies (BMI ≥25 kg/m2)

Source: Organization for Economic Co-operation and Development

obesity in 1980 as the evolution shows in Exhibit 4. By observing the growth tendencies of BMI in the past in USA, it was possible to project an increase of the obesity predominance in USA adults from about 32% in 2007/2008 to 50–51% in 2030 for men, and from 35% to 45–52% for women (Wang et al. 2011).

Obesity and income

Obesity can definitely be admitted as a global problem, which affects both wealthy and poor countries. Some time ago, obesity was mainly a problem associated to rich people, and more present in prosperous countries. However, globalization has distributed more richness over the world, and so, as people have more economical possibilities, they start including Western diets in their nutrition habits, thus turning obesity into a disease of the poor as well (Harvard School of Public Health 2015a). The people who live in the poorer counties of America are those more disposed to obesity because of the poor access to fresh food (called often the "food deserts"), to lower levels of education and to the greater sedentariness (Levine 2011). Lower levels of education are more common among poverty areas and, even though the BMI has been rising in every education group, the less educated are more likely to be obese (Bhattacharya and Sood 2011). Regarding greater levels of sedentariness, one reason to explain it may be the increased existence of violence within poor neighbourhoods, the less availability of parks and sports facilities in poor counties, and the lower affordability to be member of a gym or to buy sports and exercise equipment (Levine 2011).

Despite the facts mentioned above, high-income countries still present bigger obesity rates than middle- and low-income countries. Being said, "the U.S. is one of the wealthiest countries in the world and accordingly has high obesity rates; one-third of the population has obesity plus another third is overweight" (Levine 2011). In fact, USA is the high-income country with the uppermost obesity rate in the world (Tsai, Williamson, and Glick 2011). Today, "roughly two out of three U.S. adults are overweight or obese (69 percent) and one out of three are obese (36 percent)" (Harvard School of Public Health 2015a), while "one out of six children and adolescents ages 2 to 19 are obese and one out of three are overweight or obese" (Harvard School of Public Health 2015b). If such trends persist, estimations tell that nearly three quarters of the American population will be overweight or obese by 2020 (Wang et al. 2011), while by 2030 approximately "half of all men and women will be obese" in USA (Harvard School of Public Health 2015a).

The increase of obesity condition worldwide on these last three decades have already intensified the comorbidities related to obesity, a trend that places at risk healthcare systems,

individual lives and economies. “Given the huge costs, both public and personal, of obesity—and how hugely difficult it is to lose weight once someone becomes obese—prevention is key” (Harvard School of Public Health 2015a). Besides prevention, it would be useful and necessary to have interventions similar to tobacco and alcohol policies, in order to fight the “obesity epidemic” (Sturm 2007). However, it seems that the expansion of bariatric surgery programs is politically more achievable than having preventable policies, as its dramatic expansion shows: the number of procedures went from 13 000 in 1998 to more than 100 000 in 2003, in the USA (Santry, Gillen, and Lauderdale 2005; Sturm 2007). This fact establishes a basis of the reflection to be developed along this Thesis, in this specific case regarding the potential profits for the service providers that arise from the crescent number of surgery procedures.

4. The struggling effect of Obesity costs in the Healthcare System

Obesity has an impact in people's health, so eventually it is related both directly and indirectly with healthcare activities and costs. "The many chronic and acute health disorders associated with excess bodyweight burden a society not only by negatively affecting the health-related quality of life of its people but also by incurring substantial costs to the individuals affected and to society, notably from increased health-care costs and lost productivity" (Wang et al. 2011). The medical costs of obesity, that come most notably from cardiovascular diseases, diabetes, and cancers, refer to the direct expense occurred when healthcare resources are used to manage obesity and its comorbidities, "including the costs incurred by excess use of ambulatory care, hospitalisation, drugs, radiological or laboratory tests, and long term care (including nursing homes)" (Wang et al. 2011). Wang et al. (2011) simulated the economic and health consequences that are likely to happen in the next two decades if the continued rise in obesity persists, and found out that, according to the existing trends, 65 million more adults in the USA will become obese by 2030, "consequently accruing an additional 6–8.5 million cases of diabetes, 5.7–7.3 million cases of heart disease and stroke, 492000–669000 additional cases of cancer" both in USA and UK together.

Medical costs

In 2003, the total healthcare costs related to obesity and overweight were valued in $75 billion, accounting for 4–7% of the total healthcare spending in USA, and are expected to duplicate in every decade, representing around 16–18% of the total USA healthcare expenditure by 2030 (Wang et al. 2011). Wang et al. (2011) used both historic trends (data from early 1990's) and more recent trends to extrapolate the incidence of obesity in men and women in USA and UK, given that "data since 2000 suggest some stabilisation of projected growth". Thus, "the recent trend would project a lower, but still substantial increase in costs": $22 billion per year by 2020 and $48 billion per year by 2030 (Wang et al. 2011). Diabetes, arthritis and coronary heart disease are the conditions that contribute the most for the cost burden of obesity, given that basically half of these expenses are sustained by individuals with 65 years old or older, which implies being covered by Medicare (Wang et al. 2011).

In a systematic review addressing the economic impact of obesity in the whole world, it was concluded that 0.7% to 2.8% of a country's total healthcare expenses account for obesity, and that obese individuals present medical costs higher than those with healthy weight, by 30% (Withrow and Alter 2011; Wang et al. 2011). Looking over data in detail,

obese patients incur 46% increased inpatient costs, spend more 80% on prescription drugs and have 27% more physician consults and outpatient costs than the patients of normal-weight (Finkelstein et al. 2009; Wang et al. 2011). Even though data suggests some stabilization of the projected growth of obesity, in many populations the younger are still presenting higher obesity levels compared to previous generations, which leads to believe that there will be more people with chronic disabilities in the future (Wang et al. 2011).

Indirect costs

Besides medical costs, "society incurs substantial indirect costs from obesity as a result of decreased years of disability-free life, increased mortality before retirement, early retirement, disability pensions, and work absenteeism or reduced productivity (also known as presenteeism)" (Wang et al. 2011). Although there are some individual variations, numerous studies suggest that the lost productivity can translate into a more significant cost comparing to medical costs (Wang et al. 2011). For USA employees, men who were overweight missed work around 0.5 more days than men with healthy weight, while men classified with grade III of obesity tended to miss 5.9 more days than healthy men (BMI ≥40 kg/m2) (Wang et al. 2011). Besides, Finkelstein et al. (2010) estimated that the "value of medical expenditures, absenteeism, and presenteeism resulting from excess weight was $73.1 billion per year", transversely to all full-time employees.

How obesity imposes public costs

Regarding all these facts, there is no doubt that the treatment of obesity-related conditions is costly, and obese people have much higher medical costs than the non-obese (Withrow and Alter 2011; Wang et al. 2011), but what remains unclear is how much of the cost of obesity is paid by obese people themselves, and how much is paid by the rest of the society (Bailey 2013). Is it a private or a public expense, and whose interests are behind the increasing obesity levels?

As explained in the previous chapter, USA presents a complex healthcare system that has a majority of private health insurance, through direct consumer purchase or employer-provided health insurance, and a minority of public health insurance, namely Medicare and Medicaid (Chua 2006). To start answering the interesting question, a simple example can be very helpful: "a 50-year-old who becomes obese might pay for his or her higher medical care expenses before retirement in the form of higher out-of-pocket medical costs, higher premiums for health insurance, or reduced wages" (all private expenses). "However, after the

individual makes the transition to Medicare, most of the medical costs of obesity will be borne by taxpayers" (becoming a public expense) (Bhattacharya and Sood 2011).

Obesity can inflict public costs through many different ways, but the main one is pooled insurances (Bhattacharya and Sood 2011). If health insurance premiums adjust to risk according to the expected costs related to obesity, then these costs are "internalized and not passed on to others". In this case, insurance ends up encouraging for self-protection and weight management, as "premiums adjust to reflect the expected costs for body weight choices and other health risks" (Bhattacharya and Sood 2011). However, this is not what happens in pooled insurance because "premiums do not adjust with body weight, the incentives to invest in reducing body weight are reduced". In this situation, if one member has high medical expenses, every member of the pool will pay for that in part (Bhattacharya and Sood 2011). Medicare or Medicaid are public examples of pooled insurance which, by providing "low-cost health insurance" and shielding people from the true medical costs caused by obesity care, might induce its users to gain weight, causing a substantial welfare loss (Bhattacharya and Sood 2011). Bhattacharya and Sood (2011) even suggest that "moving from a lack of insurance to Medicaid increases body mass index in the long run by over 2 points, which is equivalent to about 14.7 pounds for someone who is 6 feet tall", but also affirm to believe that "the literature on this point is still undecided".

So, would a diminution of the obesity result in "public net cost savings"? McPherson (2008) and Van Baal et al. (2008) question this matter, by affirming that the prevention of obesity may increase life expectancy, which can result in augmented costs for the treatment of diseases associated with ageing and not directly related to obesity (as for example, senile dementia), demonstrating that this might not be the cure for high healthcare costs. However, if an obese population is compared with a lean population, where both present the *same* age and sex distribution, it is observable that the first will experience higher healthcare costs during the life course (McPherson 2008). One example that illustrates this situation is the comparison of healthcare costs between now and thirty years ago, "holding everything but obesity constant", which shows that "the current population costs much more to the health sector than it did then" (McPherson 2008). Other example is from Finkelstein, E., Trogdon, J., Brown, D. (2008), who showed that, in the USA, lifetime medical costs of obese adults are considerably higher, "even after taking differential survival probabilities into account".

How obesity diminishes public costs

With what was said before, "the distinction between lower **lifetime health costs** associated with obese individuals and higher **costs of obese populations"** needs to be clear, so that governments don't become unwillingness "to intervene when doing so implies greater health expenditure on each individual through their life" (affecting clinical or public health practices) (McPherson 2008). Finkelstein, E., Trogdon, J., Brown, D., et al (2008) describe that health can be improved and costs attributable to obesity may be decreased by adopting efforts of obesity-intervention, but simultaneously this might increase "costs to Medicare via longer survival and thus more time in the program". Nevertheless, Medicare is financially more motivated to prevent obesity compared to the private sector, because the costs of a 65 year old obese are immediately higher than those of an elderly with normal weight (Finkelstein, E., Trogdon, J., Brown, D. 2008). These authors analysis suggests that Medicare would be disposed to expend up to $2,630 and $3,460 "annually to prevent the costs of class I and class II/III obesity, respectively".

Therefore, "depending on which effect is larger, the expenditure effect or the mortality effect, some levels of obesity may actually reduce lifetime medical spending" (Finkelstein, E., Trogdon, J., Brown, D. 2008) – once again the reflection to be developed along this Thesis is evidently brought to the subject, showing that keeping obesity levels as high as they are may suit economic interests behind, either benefiting government and insurers (by having less lifetime expenses because people die younger), either promoting individuals' interests (pooled insurances shielding individuals from the obesity's genuine medical care costs).

III – Methodology and Data Collection

Given that the problem stated on this Thesis has a fundamentalist basis, the investigation necessary to support it had a much theoretical character and it was similar to a systematic review. To approach the issues around healthcare system and food industry priority was given to the use of modelling studies over database studies, while to get data for the obesity evolution was the other way around. The modelling studies incorporated various epidemiological and economic sources to predict the total indirect costs and medical care expenditures attributable to obesity, as well as several online reviews where expert authors and head news would talk about the causality behind the food industry lobbyists and its impact on the damaging nutritional behaviour of the population. The database studies, much "cleaner" and simple, utilized real data obtained from patient healthcare records and national surveys, being mostly used to know the numbers that demonstrate the evolution of obesity and overweight percentage in the American populace.

Referring to the selection process for identifying eligible articles, the search was limited to English language as Google database, Google Scholar and EBSCOhost were searched using mainly the keywords "USA's healthcare system", "Obamacare", "obesity in USA", "fast food versus healthy food", "corn production profit", "healthcare costs", "USDA role", "healthcare lobbyists", "agricultural commodities' subsidies" and "Monsanto corporation". Another requisite was to have full-text articles published between 2000 and the present year, 2015, because one thought that studies beyond 15 years old would be too much out of context, taking the risk that on that time interval a lot has changed concerning the obesity problematic patterns and health awareness of the world population. Preference was given to journal articles like *Journal of Health Economics* and *Annual Review of Public Health,* to book excerpts and to bulletins of the World Health Organization. However it was also used the other kind of information, believed to be very useful but not so reliable as it is not registered in the scientific community, and is based mostly on reportings and editorials of experts who are paying attention to the different sides of the question and have the wisdom to deepen and connect the big picture simultaneously. All these sources were included in the study if they quantified the direct and indirect costs of health care associated with obesity, if they measured the ratio of obese and overweight people existing on the USA's population, if they connected the food industry with the growing health problems brought by the weight excess, or if they talked about the lobbying activity behind food and healthcare industries.

IV – Arguments' Analysis and Findings

By matching the most useful information taken from modelling and database studies, one was able to answer to the questions initially proposed. After understanding that obesity percentage in the world basically doubled since 1980 (Finucane et al. 2011), and that nowadays "roughly two out of three U.S. adults are overweight or obese (69 percent) and one out of three are obese (36 percent)" (Harvard School of Public Health 2015a), while "one out of six children and adolescents ages 2 to 19 are obese and one out of three are overweight or obese" (Harvard School of Public Health 2015b), one found out that Americans consume more energy than they did in the past: between 1970 and 2002 food supply grew by 500kcal/day in the USA, and these larger portions are encouraging people to eat more (Young and Nestle 2002; Wang et al. 2011).

Furthermore, food quality, food prices and nutrition habits have changed, as HFCS is present in most of the foods consumed by Americans (Mercola 2011), and this fact was the trigger to the first research question of this Thesis. Why is the raw material of HFCS, corn, being so subsidized, and not subsidize other healthier crops? Between 1995 and 2010, corn production gathered in over $77 billion from the government (Mercola 2011), and movements like the Southern Africa FY 2010 Implementation Plan, during the Obama legacy, keep providing billions of dollars to agribusinesses, supporting the expansion of industrial and mono-crop farming, and not subsidizing more vegetables instead (Sager 2012). The results obtained with this Thesis' research showed that the possible motivation behind these subsidies is related to the energy production: EISA, in 2007, demanded that an amount of 36 billion gallons of renewable fuel were blended into gasoline by 2022 (EPA 2007) and one way to achieve those regulations is by producing biofuel from corn (Union of Concerned Scientists 2012). "Between 2000 and 2010, the share of the U.S. corn crop being used for ethanol grew from 6 percent to 40 percent", risking other crops and land purposes, representing a rise of 5 million acres to 35 million acres of corn acreage (Union of Concerned Scientists 2012). Corn lobbyists have been trying to increase their market share through their connections, revolving doors, and huge lobbying expenditures. In 2012, the corn ethanol industry spent $22.3 million lobbying before the USA Congress and federal agencies, as American Coalition for Ethanol spent a record $286,297 in 2012, and POET LLC, the largest corn ethanol producer in the USA, surpassed $1 million (Taxpayers for Common Sense 2013).

The forces that encourage and sustain the subsidization of corn, are those who also prevent the relief of the healthcare industry: even though there was an increase on the number of bariatric surgeries realized in the USA from 13 000 in 1998 to more than 100 000 in 2003 (Santry, Gillen, and Lauderdale 2005) suggesting that healthcare service providers may profit with the obesity epidemic, the high costs in the healthcare sector are bringing USA's economy down (McKinsey&Company 2014). Measuring the possible advantages brought by obesity, like the procedure mentioned above or by reducing lifetime medical expenditure (Finkelstein, E., Trogdon, J., Brown, D. 2008), against the disadvantages, it is possible to observe that the latest have a bigger dimension. Starting by the total healthcare costs that represented already 17.6% of GDP in 2010 and are projected to account for 20% in 2020, being that 16–18% of that total USA healthcare expenditure will be only related to obesity and correlated diseases by 2030 (Wang et al. 2011; Daemmrich 2013; Kumar and Blair 2013), going for the consequences of absenteeism, presenteeism and per capita medical expenditures, that can cost employers $6694 per year (Finkelstein et al. 2010), and given that obesity costs become a public expense when the individual moves to Medicare or are shared by all members of a pooled insurance, it becomes secure that those who are behind the healthcare industry policies are not profiting from the increased need for medical assistance caused by obesity. Instead, those who are behind food policies as well as the farmers that supply the manufacture of HFCS and biofuels, are the ones who seem to benefit more by "feeding" this obesity evolution, as they nourish this vicious cycle: the subsidies create a price inequality, so "consumers are increasingly forced by economic circumstance to "choose" the lower-priced junk food that their taxes support", naturally facilitating the increase of obesity (Sirota 2011). At the same time, as people get used to eat bigger portions (Young and Nestle 2002), the best way to satisfy their needs while keeping in mind the restraining budget, is going for fast food.

V – Main Conclusions

This Thesis allowed one to conclude that the Healthcare System of USA is effectively not in a good pathway and the main factor to blame is the overwhelming obesity. Off course we cannot disregard the fact that the high technology used in USA for medical procedures increases the prices practiced, and that the Reform of Obama increases the range of people publicly insured which augments the national healthcare expenses. But still, different studies proved that the medical costs associated to the treatment of obesity and overweight comorbidities are the main reason why USA was the country that most spent on health in 2012, and the country which GDP percentage dedicated to healthcare expenditure has been growing exponentially and is expected to continue that way.

Understanding that obesity is damaging health services was the easiest part of this Thesis, given that it is a current subject and the Obama family has been bringing this concerning topic up on the table since their arrival to the White House. The hardest part was to realize why are not preventive causes more supported and why are not serious measures being taken to fight back this condition, if the main goal is to avoid the damage of USA's economy by the absurd healthcare expenses?

One was able to conclude that the answer is food lobbyists. When USA changed its politics concerning the agricultural commodities in the decade of 1970, starting to support the overproduction of crops like corn and soybeans through federal subsidies, lot of people saw this as an opportunity for creating wealth and generating business. The federal subsidies would not be a problem for the public health and for the environment if the subsidies were fairly distributed among big and small farmers and, above all, among types of crops and seeds. It is not more expensive to encourage and feed the overproduction of lettuce or tomatoes, but corn and soy are much more subsidized because they are much more profitable: they can be directly consumed by the population under their natural shape of cereals and beans; they can be food for cattle, allowing to produce and sell much more meat at a faster rate; they can be used to produce biofuels, and specifically corn can originate HFCS, which is today the main caloric source in the American diet and present in most of the foods consumed by the American population - funny fact is that obesity levels started to rise in the late 1970's, early 1980's, around the same time that the production of corn, the HFCS raw material, was boosted. So, one can answer to the first research question and comprehend that there are plenty of reasons and interests for subsidizing the massive production of corn and not other

kind of crops that contribute in a better way for the health, even if it implies extinguishing the production of other crops, fruits and vegetables due to the growing space that corn production demands, or the exponential decrease of life quality in terms of health. Furthermore, even when one part of the government or some departments of the USDA try to compensate for this harmful support and impose good actions, like the implementation of healthy lunches in schools, agribusinesses like Coca-Cola, Del Monte and frozen pizza makers automatically defend their interests and are able to convince congress members to object against healthy guidelines (Dell'Antonia 2011).

So, when looking at the second research question that fed and conducted this Thesis, one can conclude that there are no specific mutual interests between those that are behind the decisions taken on Healthcare and Food industries. There are however lobbyists in the Food industry whose strength and power are tremendously big to fight against, and it will take much more than just the health industry and supporters to do so. Monsanto Corporation, a very important name on the lobbying list, was founded in 1901, and is perhaps the main agribusiness corporation nowadays, being responsible for the exponential growth of genetically modified foods – including corn. This corporation found its way to get inside the government and federal agencies that have impact on agricultural and nutritional decisions, making sure that the final call is their choice. Thus, even if some part of the pharmaceutical industry or certain esthetical service providers profit from the high obesity levels, agribusinesses and food lobbyists are whom benefit the most from subsidizing this accelerated fast food production and not preventing obesity from rising.

Consequently, one believes and concludes that in order to help USA's economy to sustain positively, there must be a reform in the Food Industry as well, so that there's a higher control over the food available for the public – because even if each one should know how to control its levels of appetite, people should definitely be aided on this process and re-educated nutritionally.

Limitations of the study and future research

This Thesis is, for now, only targeting the USA's healthcare system and obesity tragedy but, unfortunately, looking at the dimension of Monsanto's Corporation spreading over the world, one considers that long-term policies and choices have to be started and thought over by other countries together with USA, in order to become more sustainable and feasible. But first, for that to happen, general population, citizens, politics people and decision

makers have to be aware of this global problematic, which are not so much because it's a sensitive subject and lot of people are afraid of talking about it. Except for the obesity facts and its imposing costs on the healthcare system, one of the limitations of this Thesis is exactly the type and amount of information displayed, because there is not much "trustworthy" material about the food industry subject publicly available, there is little investigation and research articles about it, and so one's examination of the issue was very based on newspapers, documentaries and opinion columnists that discuss about economical crisis and the healthcare matter. Thus, for a better support and groundwork of future political measures, one suggests that future research is made to better understand what is the impact in USA's economy and healthcare expenses if obesity levels decrease significantly, to appreciate how urgent it is to allocate resources for fighting this health condition presently, namely by tackling food lobbyists. Moreover, the cost estimates that might result from these forecasts rely on the presently existing medical technology, so future studies should bear in mind that the technological evolution might find new ways of treating obesity and related diseases, which may affect the predictions obtained. Last, but not least, another recommendation that one believes to be valid is for future revisions to take into consideration that, in one medical visit, the patient can take care of more than one condition, so perhaps the proportional costs of high blood pressure and diabetes may even be higher than what statistics say presently. All of this must be accounted for the most transparent and reliable perception of how much obesity costs and how much the Health Care system can be relieved by preventing this condition.

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