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Seriously, do you have an iPhone too?

Survey Evidence of Positional Goods

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Master's Thesis in Economics – September 2017



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II. Abstract

Independent of nationality, age, social class, the culture or the customs, the mobile phone has become, in a short period of time, as the most popular medium of communication chosen by humans. In little more than ten years it has become an essential element for the great majority of the population. The purpose of this paper is to investigate if the mobile phones as highly positional as other status goods as e.g. cars. By means of a survey with a small experiment, I tested whether visible goods, such as mobile phones, are more positional than less visible goods such as leisure. In the survey there are socioeconomic questions and in the experiment the chosen people had to decide questions about income, leisure and the value of mobile phones according to the choices made, the degree of positionality of the topics treated was measured.

The results are consistent that income is more positional than work hours and visible goods, like the value of mobile phone, are more positional than less visible goods, like work hours. Due to the small number of observations, further research is needed to determine the positional value of mobile phones.

Keywords: *Positional goods, status, experiment, survey, mobile phones, income, leisure, utility function.*

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VI. Glossary

Android Operating system for mobile devices owned by Google.

App Mobile application, Software for mobile devices that performs a number of specific functions.

Apple Company that markets mobile devices with iOS operating system

BlackBerry Operating system and devices using it owned by Research in Motion (RIM).

Google Play App store for Android devices.

iPhone Smartphone with Apple's iOS operating system

iOS Operating system for mobile devices owned by Apple.

LG Company that markets mobile devices with Linux operating system

Nokia Company that markets mobile devices with Nokia- Microsoft operating system

Samsung Company that markets mobile devices with Android operating system

Windows Phone Operating system for mobile devices owned by Microsoft.

1. INTRODUCTION

The entry into the market of a new Smartphone is currently a "BOOM" comparable to a technological revolution. Every time when a new smartphone is introduced millions of people are willing to wait long hours at the doors of department stores with the aim of spending their monthly salary on that device. In a world where economics is the order of the day, where many families can barely reach the end of the month, it is becoming more common to save money to get this "valued" good. But is it normal for people to reach these extremes? What are the reasons why a mobile prevails, before any other necessities essential for daily life The consumption of these devices has become so widespread that it is normal for children between the ages of 14-16 to carry phones with a value of more than 700 euros in their hands. Are we really aware of these acts or just we let ourselves be carried away by the majority?

The consumption and advancement of mobile devices is growing at a rate of vertigo. Spain is considered the second country with the highest penetration mobile rate after Singapore, reveals the report Consumo Móvil 2015 Deloitte (2015).

Most of us are unable to imagine a day without our mobile devices, it is the first thing we see when we wake up and the last thing we see at bedtime. We are so linked to the mobile devices that we make them essential in our day to life.

One potential explanation for what appears to be an over consumption of mobile phones is that people hold so called positional preferences for status goods, and that Smartphones constitute status goods. Positional preferences imply that people care not only about their absolute level of consumption of a good, but also how that level relates to others consumption level. The concern for relative standing implies that individuals have incentives to increase their consumption levels to gain social status. Positional preferences, and conspicuous consumption is interesting from an economic perspective, because it creates a market failure. If everyone increases their level of consumption, the social order is left unchanged, and resources are therefore wasted.

The most popular case studies on positional preferences are, Johansson-Stenman et al. (2002), Alpizar et al. (2005) and Carlsson et al. (2007). This master thesis uses the same approach in the case of mobile phones.

In this thesis, I test the hypothesis that mobile phones constitute a status good for which individuals hold positional preferences. Despite the fact that mobile phones are so wide spread in the population, there is to date very little research on the topic.

Hence, I analyse to what extent mobile phones are as positional as other status goods such as cars, and more positional than leisure. To do this, I use one online survey to run a stated preference experiment. The sample is formed by a total of 166 Spaniards because of my nationality. Due to the small number of observations, it will be difficult to accept the hypotheses raised.

Despite its wide spread, studies related to consumer behaviour regarding mobile phones, their concerns, their attitude or needs, are practically non-existent. Given this difficulty, this paper aims to demonstrate that the visible goods are highly positional, in the case of mobile phones, as opposed to less visible goods, such as hours of work or leisure. To carry out the research, the degree of positioning of people in income, consumption and mobile phone was measured through a survey (questionnaire-experimental).

Issues related to income and consumption have been the epicentre of many research studies by economists such as Adam Smith, John Stuart Mill, Karl Marx, Alfred Marshall, Thorstein Veblen, Arthur Pigou, John Maynard Keynes, among others. Research on these known issues leads to an understanding of various economic phenomena such as high status individuals have less risky and more probability of winning (Becker and Murphy 2000), aggregate consumption (Dellenberg, 1949), wages (Agell and Lundborg, 1995), among many others.

2. RESEARCH PROBLEM

The main objective of this Master thesis in Economics, is to analyse the attitudes and perceptions of the consumers of the mobile phones and investigate if these goods are highly positional. Mobile phones may be considered as a visual good. In this thesis, I will investigate if smartphones are positional goods in comparison with income and leisure: in order to cover the main objective of the research and taking into account the limitations of the subject, a case of study is carried out through a survey-experiment, which measures the degree of positioning of people about three specific topics; income, value of mobile phones, and works hours (leisure).

It is necessary to elaborate several hypotheses with the intention of facilitating the development of the main objective of the research. The following section presents the background on positional goods and new technologies.

3. BACKGROUND – POSITIONAL GOODS AND NEW TECHNOLOGIES

3.1. What is a Positional Good?

British economist Fred Hirsch was the first to coin the concept 'positional good' in his work *Social Limits to Growth* (1976). Hirsch distinguishes between two types of goods: material and positional. Material goods serve the satisfaction of direct needs; Positional goods, on the other hand, serve primarily to satisfy the desire for prestige, social status, recognition and admiration.

Other authors before Fred Hirsch, such as Marx (1849) and Galbraith (1958), wrote about the desires, demands and pleasures of economic agents which are influenced by society. Veblen (1899) emphasized that the motivations for consumption have a component that refers to the satisfaction that the goods provide, and another that is motivated in the image that people want to transmit to the rest of society.

Referring to the search for social status and manifest in the consumption of some goods, whose selection would be strongly defined by the patterns of consumption of the upper classes, which he called the idle class. In this way, people who would like to demonstrate their wealth levels would choose to consume goods that will be indicative of that wealth, since wealth is not directly visible.

Economist Robert H. Frank popularized the term 'good position' in successive books, highlighted in *Falling Behind* (2007). Frank reflects on the tendency of the rich to buy bigger houses, giving rise to the middle class and low to be forced to borrow, work longer hours, go to live farther and sleep less to enjoy a house according to their Aspirations. This phenomenon has led to modify the standard of 'comfortable home' for the remaining social classes. Frank does not attribute it to envy but to a change in the 'social context', termed as 'Aspen effect'. (Aspen is the capital of America's luxury winter sports).

The main contribution of Robert Frank is that 'positional goods' create externalities or the so-called 'positional arms races'. There is competition between individuals or between states. These races lead to a wasteful use of resources.

Positional goods are goods and services whose value depends mainly on the attractiveness that it generates to other agents, in comparison with other substitute goods. One of its conditions is that only a few can enjoy these goods, the majority can't get this kind of goods (Vatiero, 2011).

If the economy were made up of a perfectly competitive market system, social interactions between people would be irrelevant in terms of Pareto efficiency. The rejection of this assumption is the starting point for the analysis of the positional goods; The power, status, or prestige of an individual adversely affects the welfare of others whose power, status, or prestige diminishes in parallel. Competition for this type of goods generates social problems and externalities, which affect the structure of incentives and individual consumption.

These goods due to their physical or social scarcity are made more expensive by economic development, as their supply is limited and the effort to achieve them is limited. The consumption of this type of goods only benefits a few.

On many occasions, positional goods are represented as double-exclusive and double-rival goods, to understand this definition it is necessary to know the definitions of public goods and private goods; Public goods are goods that do not exclude and are not rivals, that is to say that the consumption of a person does not exclude or affect the consumption of other people; Private goods are goods whose consumption directly affects and excludes the consumption of other people, that is, they are exclusive and rival.

Positional goods are considered as double-rival and double-exclusive because economic agents are rivals and excluders in positively and negatively consumption of the positional good (Vatiero, 2011).

For a better compression on the positional goods, it is necessary to make in deep analysis of the studies and research related to positional goods such as status, personal attributes, relative income and consumption among other topics.

All economic studies related in positional goods are based on pioneering studies of Veblen (1899). The consumption for Veblen was motivated by the desire to enjoy the goods, as well as by the social positioning that these could provide. The upper class of society, i.e. the richest, determined the consumption standards of society. In this way, consumption allows setting the status of consumers. With these behaviours consumers seek self-respect.

The line of thought that Veblen implanted was received by authors such as Galbraith, Duesenberry, Schor and Frank (1985).

Duesenberry (1949) affirmed that relative consumption relates so many macroeconomic and microeconomic aspects. Positional consumption poses several problems; 1) Breaking the sovereignty of the consumer. 2) Compete against other consumers who could gain greater success, in matters related to education and health, and higher rates of savings. These problems could have repercussions on economic development, so that regulation is often necessary through policies.

Visible consumption corresponds to renowned consumer goods that can be observed, without having to know the person who owns it (Heffetz, 2011).

The incentive to signal status is increased by the household's economic level within the reference group. This view is contradictory to Bowles and Park (2005), who maintain that the poorest want to imitate the behaviours of the richest.

The distinction of positioning allows linking inequality at the level of society as a whole and within the reference group, savings and consumption. If the less favoured sectors try to reach the consumption levels of the richest, they will have higher expenses, as a result of the increase of the consumption levels, to imitate the most favoured.

Within the recent literature on the economics of happiness, Eaton and Eswaran (2009) analyse in a theoretical model, the economic dynamics before the appearance of a common good, a Veblenian good and a communitarian good. Eaton and Eswaran argue that as income increases, so does the consumption of the positional good, while social capital is destroyed.

Arrow and Dasgupta (2009) conducted some questionnaires related to these issues. They judge the concept that 'visible' consumption inevitably leads to problems and emulations. For them, the time interval in which decisions are made is not taken into account, since they would explain that there are people who consume more and people who consume less than the average.

Experimental studies, in which participants choose between different hypothetical scenarios, provide information on individual preferences for relative consumption. However, since all choices are hypothetical, and therefore plagued by hypothetical bias, these types of experiments can only provide limited information on positional concerns. Due to difficulties in measuring positional preferences, these experimental studies do not provide conclusive evidence (Heffetz and Frank, 2011). These studies are highly related to progress in the new economy of happiness, where consumption and relative income are used to understand the Easterlin paradox (Clark, 2008; Easterlin Paradox).

Solnick and Hemenway (1998; 2005) and Solnick, Hong, and Hemenway (2007) conducted a survey-experiment in which respondents had to choose between two situations, in the first situation the respondents were better off in absolute terms and in the other situation they were better off in relative terms compared to the others.

A number of studies show the elaborate of surveys similar to the research mentioned above. In this way, it was possible to estimate the average degree of consumption and relative income. (Johansson-Stenman et al. 2002; Alpizar et al. 2005; Inga Hillesheim and Mario Mechtel (2013)). They Elaborated surveys similar to the research mentioned above. In this way, it was possible to estimate the average degree of consumption and relative income.

Carlsson et al. (2006) develop an analysis based on experiments in Sweden, where a random sample of the population is asked questions related to income, leisure, the value of cars and the safety of cars. The good of positioning is given because the preferences are expressed absolutely and not relative. In the study they found that cars and income are highly positional, while leisure and safety of cars are not.

Ordabayeba and Chandon (2011) analysed, through five experiments, the hypothesis that increasing equality within a social group generates that people save more and consume less. Although no conclusive results were found.

Charles et al. (2009), through an expenditure survey in the United States, contrasted two hypotheses: 1) Expenditure on 'reputed' goods grows with own income. 2) If the income of the group increases, spending on 'reputed' assets decreases. Through the results of the survey, it is shown that Hispanics and African-Americans have a higher spending, 30% on visible goods, than Americans. The differences become more acute within each group. In both groups the same goods are considered as positional goods.

Kaul (2013) attempts to validate the study mentioned above, proving empirically the Veblen hypothesis in an underdeveloped country with various social contrasts. The research is conducted in South Africa, which shows that households with black racial backgrounds spend between 35-50% more than households with similar characteristics with white racial offspring. Unlike Charles et al. (2009) find that there are discrepancies within each group and social interactions with the reference group. They try to verify the external validity of Charles et al. (2009), assuming that the consumption of 'reputed' goods acts as an indicator of the socio-economic position of the household, proving to what extent visible consumption decreases compared to the reference group. The findings found in the study show that an increase in the average household income leads to an increase in the expenditure of visible goods. By incorporating variables from the groups, the differences found among the socioeconomic groups become non-significant.

Both works are carried out using the scale of visible goods developed by Heffetz (2011) and employ the sum of jewellery, cars, personal care and garments as a likeness to positional consumption. Both studies preserve the reference group based on geographic and social criteria. Both use dispersion measures such as coefficient of variation and standard deviation to measure group income.

In the case of Kaus (2013) ten indicative variables were added to allocate the household within the reference group in relation to the group average.

Schor (1998) in her book *The Overworked American* maintains that people who have below-average financial status save less and vice versa.

Perez Truglia (2013) verifies the relationship between the consumption of visible goods and happiness, by analysing the effect of the peer group and through panel data for Russia. The study focuses on clothing spending, taking into account the high positional degree of these goods. The reference group is established by demographic and geographic variables. Research shows that the subjective well-being of an individual depends on the wealth of his or her reference group and is associated with the conspicuous consumption of his or her reference group. Visible goods (positional goods) are determinants while non-visible goods are not.

Khun et al. (2011) investigate the consumption of visible goods in the Netherlands, based on a lottery experiment that assigns winners by neighbourhoods, and found changes in the behaviour of neighbourhood households that did not win the lottery.

There are other cases of verification of the Veblen hypotheses that do not use the signalling model related to work decisions. Bowles and Park (2005) based on panel data from several countries, find that positional consumption leads to increased working hours together with an increase in the level of inequality, following the line of research by Schor (1998) For the United States. For these authors people are compared with the richest groups, but without trying to differentiate themselves from the poorest people.

Empirical studies related to positional goods focus on selecting assets to be examined. Heffetz, 2011; 2012 establishes a consumption visibility scale (Visibility Index, VINDEX). Through a survey of 480 in the United States, which asked about 32 sets of goods. The study focuses on socio-cultural visibility, where the concept of visible culture is posed. It is understood by visible culture to the behaviour of the group that tends to see the same things.

This concept facilitates the identification of reference groups. Demographic variables that provide information on visibility depends on the groups of goods, sex does not indicate important information, while age is significant only in the case of clothing.

Charles et al. (2009), through a survey of 119 students in the United States, found results very similar to the study analysed previously.

The following study focuses on the analysis of peer groups through a set of visible goods.

The empirical studies have focused more on the effects of the peer group than on the relative concern. Although there is some empirically contrasted research in which they focus on relative concern.

In order to understand the subject to be discussed it is necessary to carry out an in depth analysis on the mobile phones and the introduction of these in society.

3.2. World Overview on New Technology

It is essential to know the general framework of new technologies, in order to understand the great development and penetration of the mobile phone in our society.

3.2.1 The Mobile Phone Market

The mobile telephony market has marked a new era in the history of Information and Communication Technologies (ICT), considering the mobile phone as the most successful new technology in the history of telecommunications. The massive development of mobile telephony has reached saturation levels of the big world markets. (Wireless intelligence, 2007). The introduction of the mobile phone in relation to the time of introduction in the market has surpassed to the implantation of the television, Internet and even the portable computer. In countries like Spain the subscriptions of mobile phones has reached to surpass the total population (Netsize, 2007; CMT, 2007).

This new era is marked by two great leaders of the industry of the mobile telephony. On one side, is the well-known Apple company with its incorporation of the operating system iOS together with the iPhone (2007); On the other hand, Google appears with the Android operating system (2008), staying as the platform most used among consumers.

The popularity and usefulness of these devices is leaving aside the use of the computer. Followed by these two big companies appears Windows, trying to integrate their operating system in the same way in both mobile phones and computers.

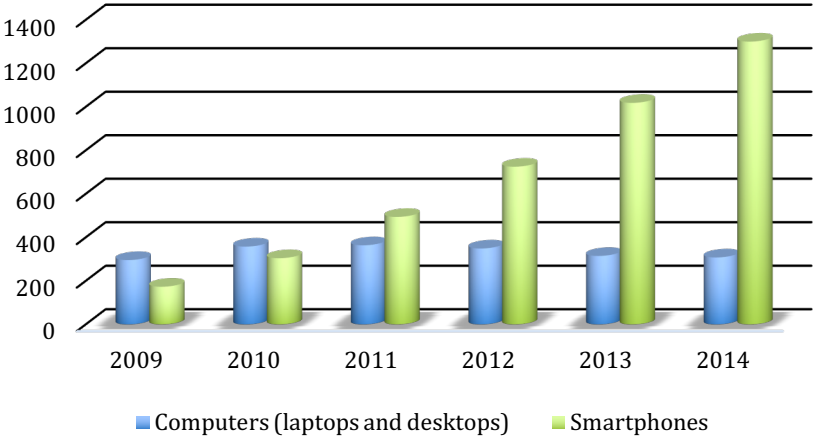


Figure 1: Global sales of computers and smartphones, in millions \$ (2009-2014). Source: IDC, 2015.

Figure 1 presents the global sales, from 2009 to 2014, of computers (laptops and desktops) and smartphones, in millions of dollars.

In 2010, the mobile phone companies attempted to capture the largest market share by the operating system. The protagonists of the moment were iOS of Apple, Android of Google, Windows Phone of Microsoft and Symbia of Nokia. Currently some companies have captured the majority of the market leaving the rest of companies behind.

In that same year, the smartphones comprised 50% of sales of mobile phones. The truth is that five years ago, smartphones already exceeded 1,000 million in the world. In 2013, worldwide sales of smartphones exceed 1,000 million of dollars and leading the ranking were Samsung, Nokia and Apple.

These last years have been characterized by the continuous growth of the sales of smartphones, besides the competition between operative systems of the mobile devices and the impulse to the development of software.

Nowadays, mobile technology is changing the way society interacts. Mobile phones have become an essential element of everyday life for most people in the world.

The total number of mobile phone users in the world is 4.8 billion almost 5 billion, this represents a penetration of 66% with respect to the total population. Into the mobile phones users, the smartphones are used by more than half the population. It is predicted that in 2020 the mobile phones subscribed will be 5,7 billion. While, the total numbers of mobile connections are 8,05 billion.

The total income, in 2016, is 1,05 billion, 2,2% more than 2015. Every year incomes continues to grow considerably.

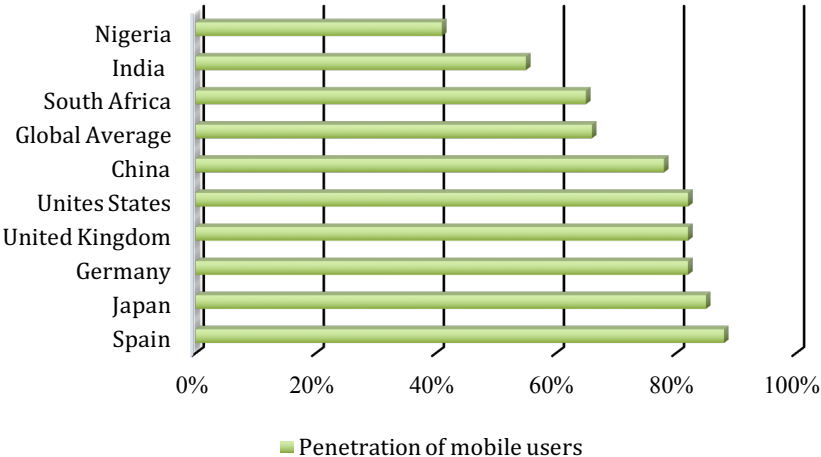


Figure 2: Penetration of mobile phones users by country 2016. Source: Digital in 2017 Global Overview.

Figure 2 shows the penetration of mobile users, in 2016, in the nine country selected. As figure shows in general Europa has the larger penetration, unlike Africa and South Asia that have the lower penetration in the world. Nigeria in the unique country with penetration lower than 50%.

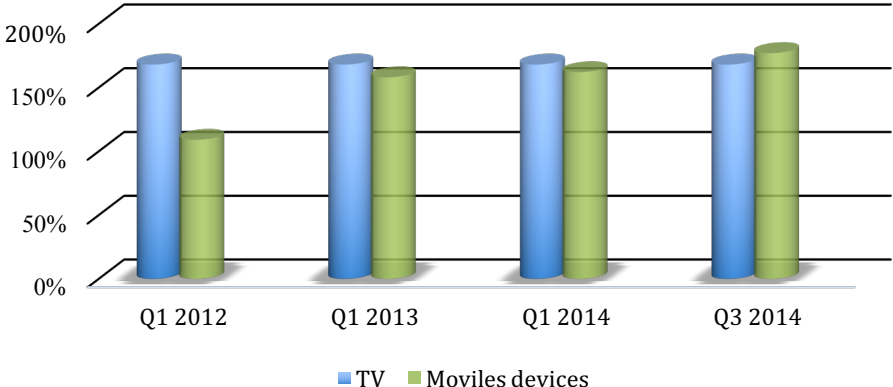


Figure 3: Average amount of time spent watching TV and watching mobile phones. Source: Flurry 2015.

In addition to knowing the penetration of mobile phones, it is necessary to know the time we spend in mobile devices. According to the report made by Ditrencia, *Mobile in Spain and in the World 2015*.

Figure 3 shows the average amount of time spent watching TV and watching mobiles phones. In 2014, it was the first time that people spent more time in front of their mobile devices than in front of the television.

This trend was most evident in the United States. Americans spent an average of 177 minutes in front of their mobile phones and an average of 168 minutes a day in front of the television (the same minutes as in 2012). This represents an increase of 60% in relation to the previous two years.

These percentages corroborate the change that is occurring in the preferences of use of the devices.

Table 1: Infiltration quota of operating systems in the world. Data expressed in percentages %. Source: IDC

	Android	iOS	Windows Phone	BlackBerry
2011	52,8	23	1,5	8,1
2012	70,4	20,9	2,6	3,2
2013	78,2	17,5	3	0,6
2014	76,6	19,7	2,8	0,4

Finally, let us analyse the penetration of the operating systems is necessary due to the importance of these in our research. As already mentioned, the growing competitiveness between Apple and Android is becoming increasingly popular. This competition is focused on covering the largest market share, being the leaders, with great differences, in the mobile market.

The most widely used mobile device in the world to access the Internet is the Smartphone. Since Android is the operative system preferred by consumers, 3 out of 4 people use this operating system, as the data showed, from IDC.

Table 1 shows the penetration share of operating systems in the world. Android represents the largest market share over the 4 years selected, but in 2014 the Android operating system fell 1.6 % over the previous year, although Apple has gained market share reaching almost 20 %. It's visible how Android and Apple cover the most part of the market.

When analysing in depth the mobile phone market, as consumers' preferences have changed and knowing that they are the positional goods, it is necessary to know the objectives and how is going to be developed the research.

3.2.2 The Mobile Phone

Table 2: Evolution of The Mobile Phone

Year	Events
1973	Motorola researcher Martin Cooper was the first to make a phone call, being the pioneer in the launch of these devices.
1984	The started to be commercialized these devices. Nevertheless, the text messages (sms) arrived 20 years after, with the first Nokia terminal that received and sent sms.
1993	IBM was pioneered in the commercialization of the first touch-sensitive mobile phone, starting the second-generation handset with more features, more powerful and attractive.
1996	Nokia was the first company to allow the access to internet in the mobiles phones terminals. In the late 90's, due to the access to internet in the new mobile phones the first mobile applications appeared.
1998	Bluetooth technology was introduced, which allows the use of the hands free to talk on the phone.
2002	Research In Motion Limited (RIM) displayed the first mobile phone with mail, the known Blackberry (Belic, 2011).
2007	Arrived the launch of the first iPhone, when the new era of mobile phones begins. The iPhone from the hand of Steve Jobs was presented with a spectacular staging as the first smartphone. Smartphones had just arrived. In the hands of the company Apple come the revolution of mobile phones and mobile applications.
2008	The popularity of the new smartphone led to the emergence of competition with Android device. At that moment the power struggles of big companies began to capture the monopoly of the mobile phones market.

Smartphones as their name suggests are smart mobile phones that incorporate functions and operating systems similar to those of a computer. The common feature of smartphones is the installation of applications that allow data processing and connectivity (Mobile Marketing Association, 2013).

The second line of research, and no less important than the previous one, had been new technologies, the mobile telephones, the market of the new technologies among other related subjects. It is necessary to review the literature to understand how other authors have investigated the selected topic.

Research on consumer behavior related to mobile telephony is scant.

Heather Shaw, David A. Ellis, Libby-Rae Kendrick, Fenja Ziegler and Richard Wiseman (2016) in the research *Predicting Smartphone Operating System from Personality and Individual Differences*, Were the first to analyse empirically the existence of individualized differences between consumer group of 'iPhone' and the consumer group of 'Android'. Despite being seemingly similar Smartphones, companies are bent on proving that there are individual differences between users. Their findings suggest that iPhone consumers, unlike Android consumers, are more likely to be younger, women and more concerned about the image through smartphones as they are considered as a state object. With respect to differences in personality, iPhone consumers show higher levels of emotionality and lower levels of honesty and humility. In addition to the results found, in the research was constructed and tested a model with the intention of predicting the owner of the smart phones through individual differences. They conclude by stating that the mobile phone provides valuable information about the owner.

Hande Kımılođlu, V. Ası Nasır, Süphan Nasır (2010), through a survey of 302 consumers on decision making in Turkey, aim to show that there are consumer segments in the mobile telephony market with different profiles. They took into account 32 different attributes which lead consumers to make the decision on which mobile device to buy. The sample was grouped into four different groups, according to the type of behaviour that consumers were demonstrating.

The results found according to the behaviour of the consumers were as follows: 1) Practical consumers are more interested in the utility and functionality of the product. 2) Moderate consumers with greater interest in utility and functionality along with product design. 3) Value-conscious consumers focused their interest in the price of the product. 4) Consumers with high levels of personality and charisma that represent a more capricious group, value more attributes and design than functionality. It's crucial that the companies of these products know the consumer groups, with the intention of better segmenting the market when it comes to marketing them.

Jihyun Kim, Yoon Jin Ma, Jihye Park (2009), analysed the utility and usability of mobile phones through consumer attitudes. The research was made possible by a survey of 341 students from two major universities in the United States. The sample was grouped by gender and age, to facilitate the analysis of the attitudes of the consumers. The results obtained prove that the sense of ease of use and utility were essential elements of attitudes about mobile commerce and communication. It also shows that the attitude about mobile commerce, was positively affected by the attitude about mobile communication.

The articles, studies and research related to the two fields of research indicated above have been found through JSTOR and Google Scholar with the idea of knowing and understanding better the field of study in which this thesis is centered.

After analysing in depth the conceptual framework, with the antecedents and the literature review, that has been used for the elaboration of this Master Thesis, next in the Chapter 5, 6, 7 and 8, the methodology, limitations and the data procedures are described for the possible development of this thesis.

4. STRUCTURE

The rest of this research is organized as follows. Hypothesis and objectives of the research is presented first in Chapter 5. Followed by Chapter 6 focuses on the limitations encountered throughout the research. Chapter 7 shows the methodology, the model in relative income and consumption and the survey-experiment. Next, Chapter 8 focuses on data collection and variables. Chapter 9 will be discussed the results obtained in the survey-experiment and the econometric analysis. The research ends with concluding comments and conclusions in Chapter 10. Finally, the survey-experiment is presented in Chapter 11 and Chapter 12 shows the reference list.

5. HYPOTHESIS AND OBJECTIVES OF THE RESEARCH

Based on the absence of studies on the attitudes and perceptions of consumers on mobile phones and taking into account the difficulty of the lack of this knowledge, the following hypotheses are presented:

Hypothesis 1: Income is more positional than work hours/leisure.

Hypothesis 2: Visible goods, such as the value of mobile phones, are more positional than less visible goods, such as work hours/leisure.

Hypothesis 3: The value of mobile phones, are status-signalling goods completely positional.

The hypotheses presented lead to the main objective of the empirical research: Analyse the attitudes and perceptions of the consumers of mobile phones and the positioning of these goods.

Following the scheme of this Master thesis, once described the theoretical framework of the investigation in which the main topic has been investigated and presented the problem to be investigated, a hypothesis has been formulated with the intention of answering the problem under study.

6. LIMITATIONS

The lack of articles on consumer behaviour of mobile phones and the small number of observations have been a limiting factor in the development of this thesis. The absence of such investigations has had direct repercussion in the elaboration of some sections of this research as is the case of Chapter 3 and 9.

In Chapter 3, the absence of previous analyses that relate the positional goods to the mobile telephony market has had a new individualized approach.

In this way I have been able to investigate, as well as, to separately the previous cases on:

- ✓ The positional goods.
- ✓ The Market of mobile phones.

In addition, in Chapter 9, the already mentioned lack of information and the small size of the sample, have generated great uncertainty in obtaining the final results. The fact of not having a pattern on which to dictate the expected results makes the obtaining of a final conclusion is at all times something unknown.

7. METHOD

The methodology of this thesis has both a qualitative and a quantitative part, but the quantitative part is of greater importance, due to the deep analysis and understanding of the data obtained through an experiment-survey.

7.1. Model in Relative Income and Consumption

There are many ways to incorporate relative attitude into the utility function. Most researches have either used some sort of level comparison utility function:

$$U = u(x, \Delta x) = u\left(x, \frac{x}{\bar{x}}\right) \quad (1)$$

Or some sort of additive comparison utility function:

$$U = u(x, \Delta x) = u(x, x - \bar{x}) \quad (2)$$

Where \bar{x} is the average income in the society and x is the individual's income.

In reality the positional concern is more complex than in the stylized models most often used. For instance, Knell (1999) research theoretically 'upward comparisons', 'within-class comparison' and 'society-wide comparisons'. The first two cases include people who want to be like the ones with higher status and people who care for their status as members of a specific group, respectively. However, for empirical and experimental simplicity I focus in the first type of comparison. I assume that the majority compare themselves to the average in society, which enables me to measure the positionality degree for each good with only one parameter.

For clearness, I used an ordinal additive utility functions:

$$u = (1 - \omega)x + \omega(x - \bar{x}) = x - \omega\bar{x} \quad (3)$$

It is easy to show that ω reflects the marginal degree of positionality. The fraction of the marginal utility of income change which comes from increased relative income.

Hence, $U = u(x, \Delta x) = u(x, x - \bar{x})$ I have:

$$\omega = \frac{\left(\frac{\partial u}{\partial \Delta x} \frac{\partial \Delta x}{\partial x}\right)}{\left(\frac{\partial u}{\partial x} + \frac{\partial u}{\partial \Delta x} \frac{\partial \Delta x}{\partial x}\right)} \quad (4)$$

In order to measure the degree of positionality, I will assume that ω is the degree of positionality. As well as, I will assume that the mean degree of positionality is the mean of value ω , with respect to the sample of individuals contemplated.

In any case to quantify the intensity of relative concern, let's think about the hypothetical choice between two societies in Part I- Experiment (Question 1), see Appendix 11.1. If the respondent is indifferent, the utility is the same in societies A and C, and so:

$$x_A - \omega_A \ddot{x}_A = x_C - \omega_C \ddot{x}_C \quad (5)$$

Solving for ω ,

$$\omega = \frac{(x_A - x_C)}{(\ddot{x}_A - \ddot{x}_C)} \quad (6)$$

In next section, the equation (6) is used to measure the degree of positionality in each questions in the Part I of the experiment.

7.2. Survey-Experiment

In order to study positional preferences for mobile phones and other potential status goods, I use a web-based survey, in which I conduct a stated preference experiment. The use of experimental set up in surveys is a common approach in positional preference research (see e.g., Johansson-Stenman et al. (2002), Alpizar et al. (2005) and Carlsson et al. (2007))

The survey consisted of two part. The first one (PART I) contained the experiment and the second one (PART II) contained socio-economics questions.

The experiment consisted of three topics: (i) Income, (ii) The value of mobile phones, (iii) Work hours (leisure). The experiment was done with this method in order to test the hypothesis mentioned in Chapter 5.

The survey began with an introduction describing the intention and contents of the survey, and if the respondent gave us the confirmation to use the data in the investigation.

The survey continued with the experiment (PART I), it started with an introduction of the necessary guidelines followed with an example:

In the first part of the survey you should choose the society that you consider the best for imaginary relative living in the future. It's more easy if you can imagine a grandchild. We would like you to choose the society, in which your imaginary grandchild, would be happiest and content.

1. It is important that you focus your response on seeking the maximum happiness of your grandchild.
2. There are no 'correct' or 'incorrect' answers in this survey. Please ponder the answer.
3. The price level and goods are the same in both societies. Prices are expressed in the current price level.
4. The differences between the societies to be chosen will be the level of income or level of consumption of your grandchild, with respect to the mean level of income or consumption of the society in general.

Example:

It is important that you focus your attention on choosing the society in which you think your grandchild will be happier. The price level is the same in both societies. In both societies your grandchild works the same number of hours per week.

Society A

- Your grandchild's income is 2,200 €/month after taxes.
- The mean income of Society A is 2,600 €/month after taxes.

Society C

- Your grandchild's income is 1,900 €/month after taxes.
- The mean income of Society C is 1,700 €/month after taxes.

In this example your grandchild earns 300 €/month more in Society A compared to Society C.

Your grandchild will earn 400 €/ month less than the mean for Society A and 200€/ month more than the mean for Society C.

Respondents were advised to think of an imaginary future family member such as a grandchild, with the intention of freeing respondents from their current circumstances. With this suggestion we hope to collect more logical and natural responses. This pattern was followed too for the authors mentioned above.

The introduction and the example were followed by nine questions: (i) three for income, (ii) three for value of mobiles phones, (iii) three for works hours (leisure). The choice of sections was not random.

I follow Carlsson et al (2007) and include income in the survey as a comparison to mobile phones. The value of the mobile phones was included since it is a visible good that probably can be a positional good. Leisure, measured in terms of work hours, was included as measures of potentially non-positional goods.

The respondents had to choose between two societies society A and society C. In society A, the individual's level of consumption is higher in absolute value, but lower than the average in society. In society C, the absolute level of consumption is lower than in A, but the individual's level of consumption is higher than the average in the society.

The implementation of the survey was as follows: For each type of consumption good, the respondent first answered a question, in which a choice of society C implied a degree of positionality of 0.25 or higher, and a choice of society A implied a degree of positionality of less than 0.25. If the respondent chose society A, s/he was forwarded to a question about a new type of consumption good. If the respondent chose society C, s/he was forwarded to a new question about the same consumption good, but in which the implied degree of positionality of alternative C was higher. The procedure was repeated for $\omega = 0.5$ or higher, and $\omega = 0.75$ or higher.

Examples for all types of consumption goods are given below.

Question 1: Income

It is important that you focus your attention on choosing the society in which you think your grandchild will be happier. The price level is the same in both societies. In both societies your grandchild works the same number of hours per week.

Society A:

- Your grandchild's income is 2,700 €/month after taxes.
- The mean income of Society A is 3,000 €/month after taxes.

Society C:

- Your grandchild's income is 2,525 €/month after taxes.
- The mean income of Society C is 2,220 €/month after taxes.

1) * In which society do you think your grandchild will be happier?

- Society A
- Society C

The degree of positionality of Question 1 is 0,25 ($\omega = 0,25$). The Equation (6) is used to calculated the degree of positionality as following;

$$\omega = \frac{(x_A - x_C)}{(\ddot{x}_A - \ddot{x}_C)} = \frac{(2,700\text{€} - 2,525\text{€})}{(3,000\text{€} - 2220\text{€})} = 0,22 \approx 0,25$$

If the respondent is indifferent $\omega = 0,25$, but if the respondent yield to Society A $\omega < 0,25$ and vice-versa.

The second question related to the value of the mobile phone of the grandchild's compared with the mean value of the mobiles phones in the society. In both societies (A and C) were defined the value of the mobile phone of the grandchild's and the mean value of the mobiles phone in the society. In this section we assume that the company where your grandchild works gives a company mobile phones in order to correct the consumption of free choice of the respondents. There were three questions in this section, with different values of mobile phones; One version of the value of mobile phone is presented below:

Question 2: Value of Mobile Phone

The company in which your grandchild works gives a company mobile phone. It is important that you focus your attention on choosing the society in which you think your grandchild will be happier. The price level is the same in both societies. In both societies your grandchild's monthly income is the same.

Society A:

- Your grandchild's mobile phone has a market value of 700€.
- The mean market value of the mobile phones of Society A is 800€.

Society C:

- Your grandchild's mobile phone has a market value of 642€.
- The mean market value of the mobile phones of Society C is 565€.

2) * In which society do you think your grandchild will be happier?

- Society A
- Society C

The last sections concerned the works hours of the grandchild's compared with the mean works hours in the society. In both societies (A and C) were defined the works hours of the grandchild's and the mean works hours in the society. the work hours are used to compare leisure with income due to the leisure normally is less positional than income.

The leisure is considered a non-positional good. There were three questions in this section, with different works hours for the grandchild; One version of the works hours/leisure question is presented below:

Question 3: Works hours

It is important that you focus your attention on choosing the society in which you think your grandchild will be happier. The price level is the same in both societies. In both societies your grandchild's monthly income is the same.

Society A:

- Your grandchild works 39 hours per week.
- The mean working hours of Society A are 35 hours per week.

Society C:

- Your grandchild works 41,5 hours per week.
- The mean working hours of Society C are 45 hours per week.

3) * In which society do you think your grandchild will be happier?

- Society A
- Society C

The degree of positionality for the different questions is calculated with the same approach.

Table 3: Societies from the experiment

	Grandchild relative's	Mean of Society	Degree of positionality (ω) Indifferent between A or C
<i>Section 1: Income (€/month)</i>			
Society A (In the three questions)	2,700 €	3,000 €	
Society C, question 1	2,525 €	2,220 €	0,22 \approx 0,25
Society C, question 2	2,200 €	2,000€	0,5
Society C, question 3	1,550 €	1,400 €	0,72 \approx 0,75
<i>Section 2: Value of mobile phones (€)</i>			
Society A (In the three questions)	700 €	800 €	
Society C, question 1	642 €	565 €	0,25
Society C, question 2	535 €	495 €	0,5
Society C, question 3	290 €	250 €	0,75
<i>Section 3: Works hours (hours/week)</i>			
Society A (In the three questions)	39 h/w	35 h/w	
Society C, question 1	41,5 h/w	45 h/w	0,25
Society C, question 2	46 h/w	50 h/w	0,46 \approx 0,5
Society C, question 3	62 h/w	66 h/w	0,74 \approx 0,75

The societies are presented in Table 3, it's possible to observe the three sections with all questions and the degree of positionality for each questions. It also presented the order in which the experiment was shown.

The second part of the survey contained questions on socio-demographic characteristics such as age, gender, and nationality (see appendix 11.1)

7.3. Econometric Method

For my statistical analysis, I have chosen to employ the Wilcoxon signed Rank test, and the Tau.b Kendall. I chose these tests, because of the relatively low number of observations in my data. It may be noted, that for a bigger simple, a more comprehensive analysis, by the use of e.g., ordered probit could have been carried out.

The Wilcoxon signed ranked test is a non-parametric test, which can be used to compare dependent samples or matched data. It is comparable to the student t-test, and is therefore sometimes referred to as the Wilcoxon t test, but can be used for within pair comparisons on ordinal scale.

H_0 is expressed as follows:

$$P(X_i > Y_i) = P(X_i < Y_i) = 0,5 \quad (1)$$

H_1 can be directional or not. It is directional when it predicts whether X is greater or less than Y, whereas it is not directional when it does not predict the direction of X relative to Y.

Where X_i is the choice of the i-th element of the first sample, while Y_i is the choice of the i-th element of the second sample.

The signs (+; -) of the non-zero differences between the responses of the two samples are used to carry out the contrast. Usually when H_0 is accepted, half of the differences are positive (+ S) and the other half are negative (-S).

The test statistic is expressed as follows:

$$S = \min (+S, -S) \quad (2)$$

When H_0 is accepted, S follows a binomial distribution of parameters $n =$ number of null differences $\pi = 0.5$.

When n is large S can approach a normal distribution being:

$$\mu_S = n\pi = 0,5n \quad (3)$$

$$\sigma_S^2 = n\pi (1 - \pi) = 0,25n \quad (4)$$

In order to test the results obtained in the Wilcoxon signed ranked test, I used the Tau.b Kendall too.

Tau.b Kendall provides a measure capable of associating two samples or variables as long as they are measured on an ordinal scale.

The Pearson coefficient is used in similar situations but compares the linear association of two variables expressed in intervals.

The Gamma coefficient excludes the cases of ties between both variables while Tau.b Kendall includes the draws. The ties between both variables I consider that they are necessary to include them in the analysis of the results. Due to these reasons the coefficient used in this thesis has been Tau.b Kendall.

The coefficient is expressed as follows:

$$\tau_b = \frac{C-D}{\sqrt{(C+D+E_{x1})(C+D+E_{x2})}} \quad (5)$$

C being the total of the matches; D total of the discordances; E_{x1} total number of draws of the first sample / variable and E_{x2} total number of draws of the second sample / variable.

The coefficient takes values between -1 and +1, yielding perfect agreement in +1 and perfect discordance in -1, which 0 indicates absence of association between both variables.

In the next sections I presented the data collection and the empirical results with the final comments.

8. DATA COLLECTION

In order to carry out the required research, an experiment-survey was made using the Software Questback. The necessary Software was provided by the UiT-the Arctic University of Norway. The experiment-survey was conducted and disseminated through social networks (Facebook, WhatsApp).

The distribution of the survey via my contacts on social media means that the sample is a so called convenience sample, rather than a random sample. This characteristic of the sample, in combination with the relatively small number of respondents, means that the data used for the empirical analysis is not a representative sample of the population. As a consequence, the results should be interpreted with this in mind.

9. EMPIRICAL RESULTS

This chapter addresses the analysis and understanding of the data previously obtained through the experiment-survey. The study of the results will be carried out through two ways of analysis with the intention of being more precise when affirming or rejecting the aforementioned hypotheses. The first of the routes is part of a descriptive statistic, while the second route is part of an econometric analysis of the results.

The descriptive statistics will allow me to know relevant information of our sample such as the number of women and men who have done the survey and the nationality of the respondents. Furthermore, identify if there is any pattern among the respondents that will allow us to have an intuitive idea of what will happen in the econometric analysis. Finally, the econometric analysis will give us the possibility of knowing clearly the existence of a pattern in our sample, besides affirming or rejecting the hypotheses with a greater precision.

9.1. Descriptive Statistics

A total of 166 individuals were part of the experiment-survey, of which 69% were women and 31% men. The average in the sample of the population is 33 years. The nationality of the respondents is considered Spanish because of the 166 respondents a total of 159 affirmed to be Spanish.

Table 4 shows all the possible scenarios of the experiment, such as the corresponding percentage of respondents who selected Societies A and C.

Table 4: Results from the experiment (PART I).

	Grandchild relative's	Mean of Society	Degree of positionality (ω) Indifferent between A or C	Percentage of responses (%)		
				No.	Society A	Society C
Section 1: Income (€/month)						
Society A (In the three questions)	2,700 €	3,000 €				
Society C, question 1	2,525 €	2,220 €	0,22 \approx 0,25	166	49,4 %	50,6%
Society C, question 2	2,200 €	2,000€	0,5	84	16,7%	83,3%
Society C, question 3	1,550 €	1,400 €	0,72 \approx 0,75	71	25,4%	74,6%
Section 2: Value of mobile phones (€)						
Society A (In the three questions)	700 €	800 €				
Society C, question 1	642 €	565 €	0,25	166	47%	53%
Society C, question 2	535 €	495 €	0,5	88	23,9%	76,1%
Society C, question 3	290 €	250 €	0,75	67	14,9%	85,1%
Section 3: Works hours (hours/week)						
Society A (In the three questions)	39 h/w	35 h/w				
Society C, question 1	41,5 h/w	45 h/w	0,25	166	53,6%	46,4%
Society C, question 2	46 h/w	50 h/w	0,46 \approx 0,5	77	33,8%	66,2%
Society C, question 3	62 h/w	66 h/w	0,74 \approx 0,75	52	34,6%	65,4%

Through these results it is possible to see if the respondents present a high degree of positionality to the topics selected in the experiment. For example, in section 1 related with monthly income after taxes, in the three questions, the percentage of choice of Society C is much higher than the percentage of choice of Society A. As it increases the degree of positionality of each question the percentage of response of Society C increases, this means that 74.6% of 71 individuals have a degree of positionality of higher than 0.75.

In the case of the value of the mobile phone the percentage of response follows the line of section 1 but with slightly higher values. Finally, section 3, working hours per week, do not show such clear results with the two previous sections, since 53.6% prefer Society A in absolute terms with a degree of positionality of 0.25. These results show that in the case of hours of work per week or indirectly leisure, individuals prefer the society where the absolute amount of hours of work is lower, ie, the absolute leisure time is greater. While in section 1, 49.4% chose Society A. Therefore, we would affirm that the income is more positional than the working hours, accepting the Hypothesis 1. This result has been demonstrated previously in the studies of Alpizar et al. (2005), Solnick and Hemenway (1998, 2005) and Carlsson et al (2007), showing that income was more positional than vacations (leisure).

In Chapter 9.2, I carry out an econometric analysis with the intention of giving more light to the results obtained in this section and thus be able to affirm or reject with more clarity the hypotheses raised.

With the intention of knowing more characteristics of the presented sample, Table 5 shows the results from the survey (economics-questions) PART II.

Table 5: Results from the survey (PART II).

Socio-economics questions	N.	%	Socio-economics questions	N.	%
<i>Brand of mobile phone</i>			<i>Reasons why you change your mobile phone</i>		
Apple	89	54%	Only when it is necessary	133	80%
Samsung	37	22%	<i>Would you buy the new iPhone 7?</i>		
<i>Brand of mobile phone you like</i>			Yes	85	51%
Apple	107	64%	No	81	49%
<i>Operating system you like</i>			<i>iPhones as a sign of status</i>		
IOS	96	58%	Yes	80	48%
Android	55	33%	No	86	52%
<i>Years of your current mobile phone</i>			<i>Look up to people who have the new iPhone</i>		
Less than 1 year	75	45%	No	146	88%

In addition to analysing these characteristics, it is important to know that 59% of those surveyed have a Bachelor's degree. 52% are employed while 40% are students. The monthly salary after taxes is between 500 -1,000 euros.

It should be noted that both the mobile phone and the most popular operating system among respondents are iPhones with the IOS operating system. Taking into account that the monthly salary after taxes of the majority of our respondents ranges between 500 - 1,000 euros and the value of these mobile devices varies between 700-900 euros, we could be in front of a highly positional good.

In the next section I will be able to know in more detail and precision all the results referred in this chapter and affirm or reject more formally the hypothesis.

9.2. Econometrics Analysis

The Wilcoxon Signed Rank Test and The Tau.b Kendall, have been used with the intention of examining the data in depth, from a more econometric aspect.

Table 6 presents the results obtained in The Wilcoxon Signed Rank Test in R.

Table 6: Wilcoxon Signed Rank Test.

	Income	Value of Mobile Phone
Income		
Value of Mobile Phone	0.6895*	
Works Hours	0.02241	0.01129

Note: *, **, *** indicates significance at the 5 level, respectively. P-value are presented.

It can be observed that only questions related to income and value of the mobile phone correspond to populations with the same distribution of probability. This means that respondents answered similar responses in most positional questions. In the case of working hours according to The Wilcoxon Signed Rank Test doesn't present any central tendencies between the income or the value of the mobile phone.

Figures 4,5 and 6 show the results obtained in The Wilcoxon Signed Rank Test represented in box plots to facilitate further understanding and interpretation of the results. The central horizontal lines represent the populations distributions of each sample.

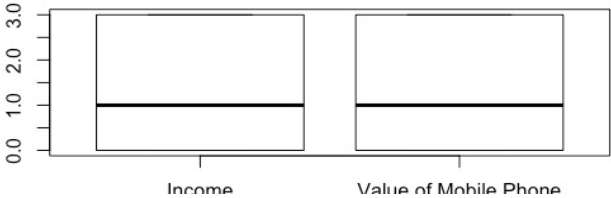


Figure 4: Box plot of Income and Value of Mobile Phone.

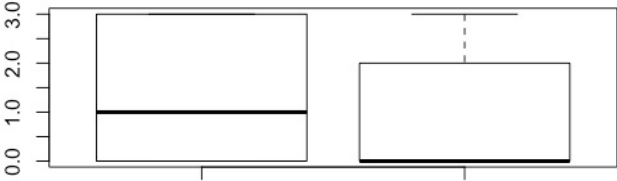


Figure 5: Box plot of Income and Works Hours.

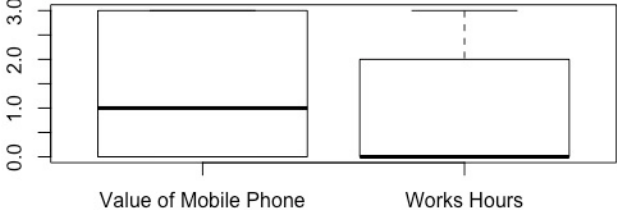


Figure 6: Box plot Value of Mobile Phone and Works Hours.

It is reaffirmed that only the income and value of the mobile phone maintain the same distribution or trend (Figure 4), while the rest do not show any similarity in the distribution of the population (Figure 5 and 6). These results affirm Hypothesis 1 and 2 presented in this thesis.

The Tau.b Kendall is used to know if two samples are correlated or not. The interpretation is the same as the Pearson coefficient, that is, the coefficient takes values between -1 and 1. If it takes the value 0 there is no correlation, whereas if it takes the value -1 there is a negative correlation and if it takes the value 1 there is a positive correlation between both variables.

Table 7 shows the Tau.b Kendall coefficients where the relationships between the variables can be observed.

Table 7 : Tau.b Kendall

	Income	Value of Mobile Phone	Works Hours
Income	1.000	0.344	0.268
Value of Mobile Phone	0.344	1.000	0.256
Works Hours	0.268	0.256	1.000

There is a relation between the Income and the Value of Mobile Phone of 0.344 being the largest relationship between the variables. The ratio of Income and Works Hours is 0.268 very similar to the relationship between the Value of Mobile Phone and Works Hours, which is 0.257, the lowest ratio being given among the variables.

Table 8 presents Tau b Kendall coefficients for correlation between the potentially positional consumption goods and a set of socio-economic variables. As can be seen in the table.

Table 8 : Tau.b Kendall with all variables

	Income	Value of Mobile Phone	Works Hours	Age	Sex	Level of Studies	Employ Situation
Income	1.000	0.344	0.268	-0.077	0.073	0.108	-0.027
Value of Mobile Phone	0.344	1.000	0.256	-0.051	0.024	0.108	-0.059
Works Hours	0.268	0.256	1.000	-0.074	0.098	0.092	-0.072
Age	-0.077	-0.051	-0.074	1.000	-0.099	-0.310	0.610
Sex	0.073	0.024	0.098	-0.099	1.000	-0.104	-0.062
Level of Studies	0.108	0.108	0.092	-0.310	-0.104	1.000	-0.328
Employ Sit	-0.027	-0.059	-0.072	0.610	-0.062	-0.328	1.000

There is a negative relationship between Income, Value of Mobile Phone and Works Hours; with Age and the Employ Situation, this suggests that in my sample, younger individuals are more positional. The rest of the variables present a positive relation with main variables.

The correlations has provided information to affirm with evidence the Hypothesis 1 and 2 that maintain this Master Thesis. This may imply that the value of mobile phone is more positional than works hours normally.

Nevertheless, we don't have the sufficient evidence to be able to affirm the Hypothesis 3. This Hypothesis can be affirming thanks to the knowledge acquired after the long research process that has led this thesis, but not through the results obtained.

10. DISCUSSION AND CONCLUSION

In this thesis has been measured, through a random survey, the perception of respondents about goods more or less visible to consider whether the most visible goods become more positional than less visible goods. It is the first time that the option of mobile phones is considered as positional goods such as houses, income, jewellery ... The income, the value of the mobile phone and working hours are the three topics used to know The preferences and the degree of position of the respondents.

The analyses carried out present evidence that the income and value of the relative mobile phone are more important than the absolute terms. These results maintain that respondents prefer to look better than the rest.

The results show that the most visible goods, such as the value of the mobile phone, are more positional than the less visible ones, such as working hours. The results presented are consistent with hypotheses 1 and 2.

Taking into account the limitations and difficulties of the topic to be addressed, hypothesis 3 could not be affirmed. Although the results do not show that mobile phones are status-signaling goods completely positional after knowing and analyzing all relevant information on positional goods and mobile phones, this hypothesis could be affirmed based on the results obtained in the socio-economic questions (PART II), where it is known that both the mobile phone and the most popular operating system among respondents are iPhones with the IOS operating system. Taking into account that the monthly salary after the majority of our respondents ranges between 500 - 1,000 euros and the value of these mobile devices varies between 700-900 euros, we could be in front of a highly positional good.

It should be borne in mind that all experimental research based on surveys must be meticulously manipulated and can be evaluated through various analyzes and biases. The future related studies will provide more light, with different empirical strategies incorporating important knowledge and more consistent results.

11. APPENDIX

11.1. Survey questions



Are mobile phones positional goods?

With this survey, we want to find out about your preferences of mobile phones, and how those preferences link to other people's consumption of mobile phones. The survey consists of two parts, and we estimate that it will take about 7 minutes to fill it out.

The survey is part of a Master thesis in Economics (MSc) at the School of Business and Economics at UiT- the Arctic University of Norway. Your answers are anonymous. All data will be treated in accordance with the strict data rules in Norway <https://www.datatilsynet.no/>.

If you have any questions or comments on the survey, please contact Carla Fernández García at cfe002@post.uit.no.

Thanks for your contribution.

Your identity will be hidden.

1) * You give your confirmation so that your data can be used in this investigation.

- Yes
 - No
-

PART I

EXPERIMENT

In the first part of the survey you should choose the society that you consider the best for imaginary relative living in the future. You can imagine a grandchild. We would like you to choose the society, in which your imaginary grandchild, would be happiest and content.

5. It is important that you focus your response on seeking the maximum happiness of your grandchild.
6. There are no 'correct' or 'incorrect' answers in this survey. Please ponder the answer.
7. The price level and goods are the same in both societies. Prices are expressed in the current price level.
8. The differences between the societies to be chosen will be the level of income or level of consumption of your grandchild, with respect to the mean level of income or consumption of the society in general.

Example:

It is important that you focus your attention on choosing the society in which you think your grandchild will be happier. The price level is the same in both societies. In both societies your grandchild works the same number of hours per week.

Society A

- Your grandchild's income is 2,200 €/month after taxes.
- The mean income of Society A is 2,600 €/month after taxes.

Society C

- Your grandchild's income is 1,900 €/month after taxes.
- The mean income of Society C is 1,700 €/month after taxes.

In this example your grandchild earns 300 €/month more in Society A compared to Society C. Your grandchild will earn 400 €/ month less than the mean for Society A and 200€/ month more than the mean for Society C.

2) In which society do you think your grandchild will be happier?

Income

It is important that you focus your attention on choosing the society in which you think your grandchild will be happier. The price level is the same in both societies. In both societies your grandchild works the same number of hours per week.

Society A:

- Your grandchild's income is 2,700 €/month after taxes.
- The mean income of Society A is 3,000 €/month after taxes.

Society C:

- Your grandchild's income is 2,525 €/month after taxes.
- The mean income of Society C is 2,220 €/month after taxes.

3) * In which society do you think your grandchild will be happier?

- Society A
 - Society C
-

Society A:

- Your grandchild's income is 2,700 €/month after taxes.
- The mean income of Society A is 3,000 €/month after taxes.

Society C:

- Your grandchild's income is 2,200 €/month after taxes.
- The mean income of Society C is 2,000 €/month after taxes.

4) * In which society do you think your grandchild will be happier?

- Society A
 - Society C
-

Society A:

Your grandchild's income is 2,700 €/month after taxes.

The mean income of Society A is 3,000 €/month after taxes.

Society C:

Your grandchild's income is 1,550 €/month after taxes.

The mean income of Society C is 1,400 €/month after taxes.

5) * In which society do you think your grandchild will be happier?

- Society A
- Society C

Value of Mobile Phone

The company in which your grandchild works gives a company mobile phone. It is important that you focus your attention on choosing the society in which you think your grandchild will be happier. The price level is the same in both societies. In both societies your grandchild's monthly income is the same.

Society A:

- Your grandchild's mobile phone has a market value of 700€.
- The mean market value of the mobile phones of Society A is 800€.

Society C:

- Your grandchild's mobile phone has a market value of 642€.
- The mean market value of the mobile phones of Society C is 565€.

6) * In which society do you think your grandchild will be happier?

- Society A
 - Society C
-

Society A:

- Your grandchild's mobile phone has a market value of 700€.
- The mean market value of the mobile phones of Society A is 800€.

Society C:

- Your grandchild's mobile phone has a market value of 535€.
- The mean market value of the mobile phones of Society C is 495€.

7) * In which society do you think your grandchild will be happier?

- Society A
 - Society C
-

Society A:

- Your grandchild's mobile phone has a market value of 700€.
- The mean market value of the mobile phones of Society A is 800€.

Society C:

- Your grandchild's mobile phone has a market value of 290€.
- The mean market value of the mobile phones of Society C is 250€.

8) * In which society do you think your grandchild will be happier?

- Society A
- Society C

Works hours

It is important that you focus your attention on choosing the society in which you think your grandchild will be happier. The price level is the same in both societies. In both societies your grandchild's monthly income is the same.

Society A:

- Your grandchild works 39 hours per week.
- The mean working hours of Society A are 35 hours per week.

Society C:

- Your grandchild works 41,5 hours per week.
- The mean working hours of Society C are 45 hours per week.

9) * In which society do you think your grandchild will be happier?

- Society A
 - Society C
-

Society A:

- Your grandchild works 39 hours per week.
- The mean working hours of Society A are 35 hours per week.

Society C:

- Your grandchild works 46 hours per week.
- The mean working hours of Society C are 50 hours per week.

10) * In which society do you think your grandchild will be happier?

- Society A
 - Society C
-

Society A:

- Your grandchild works 39 hours per week.
- The mean working hours of Society A are 35 hours per week.

Society C:

- Your grandchild works 62 hours per week.
- The mean working hours of Society C are 66 hours per week.

11) * In which society do you think your grandchild will be happier?

- Society A
- Society C

PART II

PERSONAL INFORMATION / SOCIOECONOMIC VARIABLES

12) * Age

13) * Sex

- Man
- Woman

14) * Nationality

15) * Level of studies

- Primary school (9 years) or lower
- Secondary school (12 years)
- University education (Bachelor)
- University education (Master or PhD)

16) * Employment situation

- Student
- Employee
- Domestic service
- Unemployed

17) * Monthly income after taxes

- 500 €-1,000 €
- 1,000 €-2,000 €
- 2,000 €-3,000 €
- 3,000 €-4,000 €
- 4,000 €-5,000 €
- 5,000 €-6,000 €
- > 6,000 €

18) * What brand of mobile phone do you have?

- Apple
- Samsung
- Nokia
- LG
- BlackBerry
- Others brands

19) * What brand of mobile phone would you like to have?

- Apple
- Samsung
- Nokia
- LG
- BlackBerry
- Others brands

20) * If you could choose freely, which operation system would you like to have on your phone?

- Android
- IOS
- Windows Phone
- Other operation system

21) * How many years have you had your current phone?

- Less than 1 year
- More than 1 year
- 1-3 years
- + 3 years
- I don't know

22) * Think back on your last couple of phones. For how long do you on average use a mobile phone ?

- Less than 1 year
- More than 1 year
- 1-3 years
- + 3 years

23) * What are the reasons why you decide to change your mobile phone?

- By fashion
- Only when it is necessary
- For loss or theft

24) * If you had enough money, would you buy the new Apple mobile phone, the iPhone 7?

- Yes
- No

25) * Do you think that iPhones can be a sign of status?

- Yes
- No

26) * Do you look up to people who has the latest version of the iPhone?

- Yes
- No

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