THE ADDED VALUE OF HAVING MULTIPLE OPTIONS TO TRAVEL TO:

A case study in Spain

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Summary

Improving accessibility has become one of the main objectives for policymakers in the transport and urban field. Having access to activities and people is essential to ensure the proper functioning of societies and it affects people's quality of life. One of the remaining challenges in this field is related with the economics of accessibility, in particular, with the monetary quantification of the added value of having multiple options available to travel to. Accessibility indicators and current theory suggest that having more options available is translated into higher levels of accessibility. However, the benefits of increasing the number of alternatives is subjected to the law of diminishing returns, that is, the added value provided by each additional option decreases as more options are available. Therefore, the main research question of this thesis is: *How much are individuals willing to pay for having different quantity of options of the same destination (e.g., a supermarket) to travel to?*

The research methodology proposed to answer this research question consists on a preliminary research and two different questionnaires. The study area of this research is a small Spanish city, located in the province of Albacete. The aim of the preliminary research is to gather information about the context and the culture of this study area. In this way, data about sociodemographic characteristics of the population, the location and current number of destinations or perceptions about current services has been searched. The non-market nature of the services to be analysed makes Stated Preference approaches the best methods to elicit monetary values. However, due to the novelty of the research, a first exploratory questionnaire was designed to obtain a first sight of the citizens' opinion about the importance that they give to have multiple options of the same destination, which factors they value most, or what are the main reasons why they value having several options. After that, the second questionnaire was elaborated using a particular Contingent Valuation Method, namely Payment Cards, whose objective is to elicit monetary values for different hypothetical situations in which the supply of the service varies. Both questionnaires were distributed online in order to reach the highest number of respondents.

The results show that people prefer to have more options of basic services, such as food stores, pharmacies, schools or medical centres, than non-essential services like gyms, hairdressers or clothe shops Moreover, proximity is considered an important factor just for basic services, while variety is more appreciated for secondary ones, so that people can choose the one that best suits their likings. After analysing the results from the first questionnaire and applying other relevant criteria, two final destinations were chosen to be further analysed in the second questionnaire, namely, kindergartens and primary health centres.

Results show that, in the case of kindergartens, more than half of the respondents are willing to pay extra 12€ per month (median value) for expanding current services in case the demand increases, whereas just 8€ to remain in the status quo in the hypothetical situation in which demand holds or decreases. At first sight this result may seem the opposite to the concept of loss aversion, but when placed in context it may be reasonable that citizens are not willing to pay for keeping open empty kindergartens. Furthermore, the results showed that not all the respondents are willing to pay the same amounts, resulting in significant differences among respondents who are users, have been in the past, or will probably be in the future, and those who have no children, prefer private kindergartens or simply do not make use of the service.

On the other hand, there is no such a difference between users, option users and non-users in the case of medical centres. All the three groups present a mean WTP value of 50€ per year for expanding current services. One possible explanation is that everyone is a potential user of this service, even if they do not currently use it. Therefore, option values would probably be high for option and non-users, being willing to pay the same amounts than regular users. Also, non-use values may play a key role. It is important to mention that there is not a significant difference in the values reported when considering the two possible alternatives proposed to expand the service. Although finishing a second medical centre is more expensive than extending current schedule, people is not willing to pay more for it.

After reflecting on all the findings obtained and place them in the context of the study area, it can be concluded that sometimes it is not only the number of options itself what citizens appreciate (and are willing to pay for), but many other factors should be taken into account. For instance, for public services, the amount of destinations can be subjected to political strategies such as increasing the number of services even if they are not needed. Moreover, people may prefer to have less options with high service quality, than more options with poorer quality. Finally, for private destinations in which people's preferences play a key role, the particular characteristics of each new (or removed) option will influence the total value for each individual.

Thanks to this research, policymakers are better informed to make decisions about public services, avoiding unnecessary costs and allocating public funds more efficiently. In the particular case of this research, information to make future decisions is provided for different scenarios. For example, in case the demand for primary health services increases, policymakers should extend current schedule, as it is cheaper than opening a new centre and people value both alternatives in the same way . Moreover, current managers and future entrepreneurs can obtain useful insights for running their businesses. The results from the questionnaires show which factors are more appreciated for each type of destination, in addition to the citizens' perception about the current number of options available, making it easily to identify market opportunities.

Finally, several interesting future research avenues are proposed to further explore about this topic. For instance, the research can be replicated in other contexts with different cultural factors to see whether people's preferences vary. Moreover, more sophisticated methods can be applied to estimate how much are individuals willing to pay. Finally, it would be very interesting to analyse private and non-essential destinations in order to compare whether the results differ and empirically test the hypothesis derived from the first questionnaire.

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Yours sincerely,
Maria del Mar Parra Lopez

Villarrobledo, June 2020

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List of Abbreviations

MoT	Management of Tecnology
WTP	Willingness to Pay
WTA	Willingness to Accept
TEV	Total Economic Value
SP	Stated Preference
CVM	Contingent Valuation Methods
CE	Choice Experiment

1 INTRODUCTION

1.1 Background

This document represents the report of the Master Thesis titled "The added value of having multiple options to travel to: A case study in Spain". One of the current main aims of transport planning and policy making is to improve accessibility in order to ensure the proper functioning of societies and enhance the population quality of life. Transport systems should allow both people and goods to have an adequate access to destinations (Geurs & van Wee, 2013). Having access to supermarkets, schools, medical services, shops, in addition to access to other people, such as family or friends, and social activities, plays a key role in an individual's quality of life. Furthermore, accessibility is crucial for supporting the economic activity, for example, people need access to jobs, as well as firms need access to employees, suppliers, and customers. Modifications related to accessibility also have influence in environmental and safety issues, such as transport emissions, ecosystem impacts or traffic accidents (Geurs, Haaijer, & van Wee, 2006; van Wee, 2016).

The concept of accessibility has gained attention during last years, in part, due to the increasing trend towards urbanization. The number of megacities has notably grown since 1990, and it is expected that there will be around 40 urban agglomerations with a population over 10 million by 2030. Living in cities provides certain advantages derived from proximity, diversity and marketplace competition. However, cities around the world are facing many challenges, such as traffic congestion, lack of basic services, climate change, urban poverty, or unplanned development. These challenges posed by rapid urbanization cannot be addressed only by city administrations, but also need the support of citizens, the private sector, NGOs and academic institutions, which provide complementary skills and resources (World Economic Forum, 2016).

Due to the essential role of accessibility for both policymakers and societies, there has been great research activity during the last decades about different issues related to the topic. However, there are still several research challenges that have not been fully covered yet. One of these remaining challenges is related with the economics of accessibility, in particular with the quantification of the added value of having multiple options to travel to.

The main purpose of personal travel is to acquire some benefit at the destination individuals are visiting and which, otherwise, they could not obtain. Reaching that destination also implies an effort or cost. Therefore, people seek to maximize the utility provided by engaging a particular activity by balancing the benefits and costs associated with that activity. However, as more choices are available, the additional benefit from access any kind of destination would tend to decline, i.e. the added value of an additional unit is not constant, and it is subjected to the law of diminish returns. For example, the added value of having 1 supermarket compared to none is considerably high. Adding a second supermarket can still add value if it is cheaper, offers more variety or it is closer. But the increase from 5 to 6 supermarkets placed at the vicinity would hardly add value (van Wee & Geurs, 2016; Metz, 2008).

On the other hand, one of the common objectives for urban policy makers is to provide access to basic services to the highest percentage of the population. In general, urban plans are just based on distance measures of accessibility to basic services such as food stores, pharmacies or schools, not considering people's preferences. However, as stated previously, individuals try to maximize their utility, which means that they could be willing to travel more in order to reach a destination that is more attractive than a closer one.

In this increasingly globalized world, it is not rare that people do groceries in a well-known supermarket chain, instead of going to his closest neighbourhood store. Likewise, citizens may prefer famous clothe brands over local stores or seek the cheapest hairdresser. Therefore, proximity may not be the only factor that people value when choosing a destination, and people's preferences and behaviours should be considered to design urban plans that adapt to citizens' demands.

In the context of accessibility, the concept of 'Total Economic Value' has been widely used to economically evaluate changes in the transport system. This concept is defined by Geurs, Haaijer, & van Wee (2006) as the sum of all relevant Willingness to Pay values for any change in an individual's well-being due to a policy or project. Several authors (e.g. Laird, Geurs, & Nash, 2009; Chang, 2010) identify three different economic values: i) use values, which are derived from the direct consumption of a service or good, ii) option values, that are based on the future potential use of a service, and iii) non-use values, which are independent of any present or future usage.

Up to date, research about this topic has focused on the quantification of use, option and non-use values applied to the transport system (e.g. Geurs, Haaijer, & van Wee, 2006; Humphreys & Fowkes, 2006; Laird, Geurs, & Nash, 2009; Chang, 2010), and just one scientific paper has been found that links option values to the field of accessibility in general (e.g. Bondemark & Johansson, 2017). To the author's knowledge, only the work developed by Johnson, Jackson, & Nash (2013) estimates use, option, and non-use values for different service levels of a public destination (Post Offices).

1.2 Problem Statement

1.2.1 Research Objective

Most of the accessibility indicators imply that having more options available is better, and that travel resistance factors should be valued negatively. But how important is it to have more options available, even those that people do not currently use? For example, having several restaurants available, even if a person does not usually visit all of them, can be valuable for that person because he/she has other options to visit in case one is closed, increases the prices, or his/her preferences change. It can also be obvious that if one had one school at two kilometres from his/her house, having a second one that is closer or provides better educational offer, could add value to that person. But does having seven schools add value over having six available?

Therefore, the main research objective of this thesis is to *quantify the added value of having multiple options available to travel to, even those that people do not currently visit.* By reaching this objective, policy makers will have more information to make decisions about urban planning. That information will also be useful for current businesses and entrepreneurs in order to improve their service and identify market opportunities. Moreover, a methodology to evaluate the added value of destinations will be proposed, and it could be very helpful for academics to develop future research. Although the objective is stated in general terms, a particular case study has been done in Spain, whose context will be presented later in this chapter.

1.2.2 Research Question

For this thesis, the main research question is the following:

How much are individuals willing to pay for having different quantity of options of the same destination (e.g., a supermarket) to travel to?

To answer the main research question, a set of sub-questions are required to guide the research and provide the information necessary to achieve the research objective. In this case, four sub-research questions are proposed:

- *Which destinations are considered more important regarding having multiple options to travel to?*
- *What are the reasons why people value having multiple options of the same destination to travel to?*
- *Which factors influence the appreciated value for each type of destination?*
- *How do different demographic groups differ in the willingness to pay for having multiple options of the same destination available?*

The first sub-question aims to narrow the research to a few types of destinations since the range of possible activities is very broad and would be unfeasible to analyse all of them. The second sub-question addresses the reasons why people may value having more than one option of the same destination available. The third one focuses on identifying the factors (travel time, price, variety, service quality, etc.) that influence the value perceived by individuals. Finally, the last sub-question will help to know whether different demographic groups have different appreciations about the willingness to pay for different levels of destinations offer.

1.3 Relevance of the research

Scientific Relevance

As it will deeply explained in *Chapter 2,* research about the economics of accessibility is still in its infancy and it has primarily focused on the quantification of option and non-use values of public transport. However, there is a knowledge gap regarding the estimation of the value provided by having different number of destinations to travel to. An exploratory and descriptive study about this topic could provide useful insights for future research, opening a new branch in accessibility research.

Societal Relevance

Decisions in territorial and urban planning change the environment, affect the places where people live and work, the way they move or what leisure time is dedicated to, being factors that determine people's health. Therefore, it is really important to adequately plan the demand and needs for each service, consider equity issues or promote community participation when making decisions that affect citizens' accessibility (Agenda Urabana Española, 2019).

While cities present several advantages and opportunities to individuals and families, they also face increased social segregation and shortages of physical and social infrastructure. According to the World Economic Forum (2016), cities today must: plan for a sustainable and resilient future; balance economic and social development, as well as environmental protection; and design solutions adapted to their local context, enhancing their character.

Getting to know how inhabitants of a particular city value having different kinds and number of destinations, could help policymakers, with the aid of the private sector and local communities, to create more sustainable and balanced cities. This will allow people to identify with their closest urban space, increasing social cohesion and the interrelation between the city and its inhabitants.

Management of Technology Relevance

Regarding the Management of Technology (MoT) perspective, an analysis about citizens' preferences can provide useful insights for current businesses, helping them to improve their customer satisfaction and increase their income. Public organizations may have more information to efficiently allocate funds. Moreover, it may also benefit local entrepreneurs, who could identify market opportunities easier thanks to the information provided by this kind of research.

Knowledge and skills acquired in MoT curriculum have been applied for the development of this thesis. For example, the *Research Methods* course (MOT2312), which provided an overview about designing a scientific research, has been very useful in all the stages of the project; the contents of the course *Inter- and intra- organisational decision making* (MOT1451) have helped to understand why policymakers and other actors have made certain decisions in the past related to the topic; in the course *Social and Scientific values* (MOT1442), the role that emotions play in individual choices and actions was explained, being an important point to consider in this research.

1.4 The case of Spain

A particular case study has been done in Spain, country that presents some peculiar characteristics. The United Nations expects that, within 20 years, two thirds of the world's population will live in urban areas, concentrating on cities. As mentioned before, this phenomenon will create social, environmental, cultural, food and health, economic and, of course, territorial challenges. In Spain this percentage has already been reached and, currently, 80% of the population is concentrated in urban areas, which represent only 20% of the territory, being among the countries with the highest percentage of urban population across the European Union (EU). Consequently, problems of depopulation in rural areas as well as congestion and sustainability problems in metropolitan areas have arisen (Agenda Urabana Española, 2019). In order to address these challenges, the Spanish Government wrote the report 'Spanish Urban Agenda' (2019) in which they present several strategic objectives, indicators, and action plans to solve these problems.

The report presents three strategic objectives which can be linked to topic at issue:

i) *to avoid urban dispersion and revitalize the existing city*. It is very important to define urban models that promote compact and balanced cities, in addition to providing access to basic services. The authors of the Spanish Urban Agenda highlight the importance of designing a balanced and proper system of local services and equipment, both qualitatively and quantitatively, considering proximity for their location. Moreover, they propose to implement actions that allow citizens to satisfy their everyday needs in an autonomous way and at a neighbourhood level, matching the offer of services and equipment to the neighbourhood demand. It is also important to not generalize the number and identity of the services in every neighbourhood, and graduate each of them to avoid economic and unsustainable environmental costs. Finally, other lines of action are related with avoiding the gentrification of certain areas of the city by balancing residential uses with tertiary uses.

ii) *to promote proximity and sustainable mobility.* One of the sub-targets linked with promoting proximity is to design an urban model that supports complexity, which refers to diversity and the degree of mixture of land uses and functions in the same area. This allows reducing travel distances within the city. Furthermore, planning with a mixture of uses seeks the impulse of small-scale economic activity spaces, such as offices, small businesses, shops and their compatibility with residential uses and the near existence of services related to the welfare like education, health, leisure or sports. It also pursues the transformation of industrial areas into mixed activity spaces, compatible with urban life, especially those closest to urban land, trying to avoid relocation to increasingly remote places with monofunctional activities, such as large shopping and leisure centres, which generate a great environmental impact by being fundamentally linked to car travel.

iii) *to promote and support urban economy.* Policymakers should seek to promote local productivity and employment generation while energising and diversifying the economic activity of small cities and areas with depopulation risk. Actions to coordinate urban and territorial decisions with sectorial planning are essential to join efforts in the same direction and boost local economies.

1.5 Report Structure

This report is structured following a variant of the IMRaD structure (Introduction, Methods, Results, and Discussion), which is a commonly used structure for scientific papers. In this case, a theoretical chapter is included due to social science relevance of the Master Programme, in addition to ground the research methods. The report is composed of six chapters that are explained below and linked as *Figure 1.1* shows.

Chapter 1 introduces the background of the topic, defines the problem statement, and states the relevance of the research, placing the topic in context for the following chapters.

Chapter 2 presents an overview of the main findings of current literature related to the topic, identifying a knowledge gap which is the starting point of this thesis.

Chapter 3 explains the research methodology that has been followed, consisting on a preliminary research about the study area, and two different questionnaires (one more explorative and one more descriptive) that are designed to answer the research questions, based on the main findings of the reviewed literature.

Chapter 4 presents and discusses the results obtained from the preliminary research and the two questionnaires.

Chapter 5 exposes the limitations of the research, in addition to its academic and practical implications. It also describes directions for future research endeavours.

Chapter 6 concludes the main findings of the research, answering the research question(s), and reflecting on the decisions made during the development of the thesis.

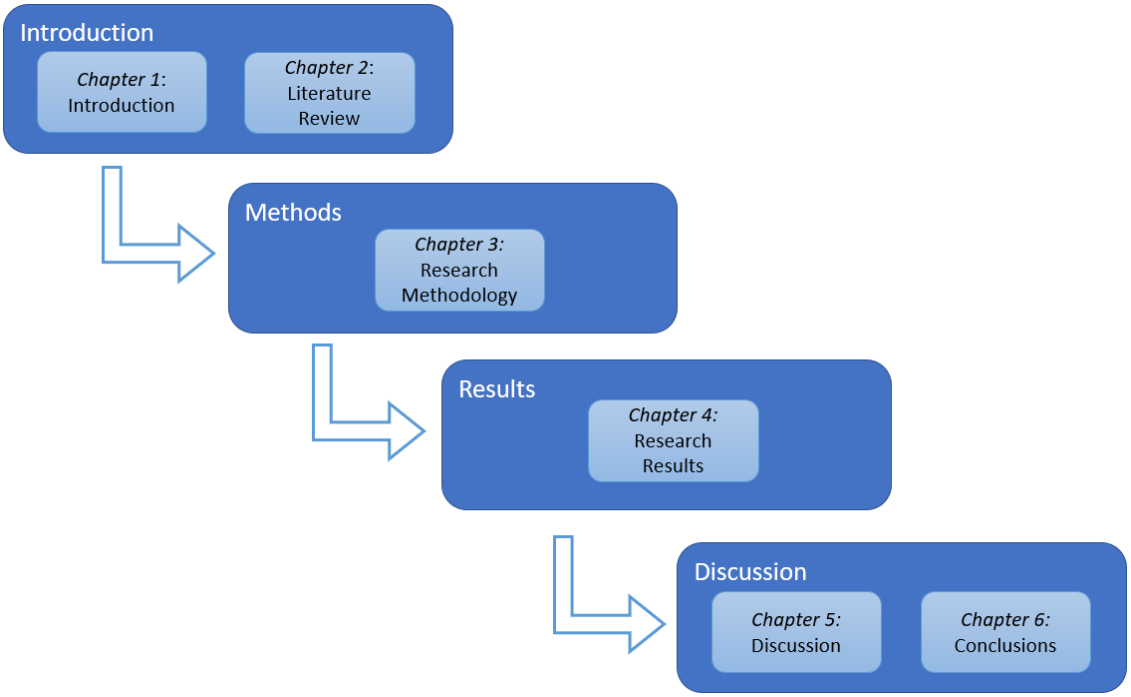

Figure 1.1: Report Structure

2 LITERATURE REVIEW

2.1 Introduction

The aim of this chapter is to provide the theorical foundations of the thesis, describing the main concepts related to the topic as well as similar past research. The chapter is divided in four main blocks. The first one is related with the concept of accessibility in general, of which many authors have written during the last decades and a broad range of literature can be found about many aspects of accessibility. The second section narrows the topic towards the economics of accessibility, explaining the different values that can be derived from the availability of goods and services, in addition to other relevant concepts such as Hicksian welfare measure and the law of diminishing returns. The third section describes the main methods applied in past research to estimate economic values in accessibility-related projects. The last block presents the evidence about the topic in Spain. Finally, some conclusions are presented.

2.2 Accessibility

The concept of accessibility is used in a wide variety of fields like transport and urban planning, geography or marketing. However, defining accessibility can be a difficult task as the concept has taken different meanings, lacking a formal definition (Geurs & Ritsema van Eck, 2001). For example, Hansen W.G. (1959) defined the concept as 'the potential of opportunities for interaction', whereas Morris, Dumble, & Wigan (1979) stated that accessibility denotes 'the ease with which activities may be reached from a given location using a particular transportation system'. Another simpler, and more recent definition was proposed by Bondemark & Johansson (2017) who stated that accessibility is 'the end product of a transport system and dependent on the use of land'. In general, most of the definitions include destinations or opportunities and a transport component. It is also commonly agreed that the more options available and the lower the travel resistance, the higher the level of accessibility (van Wee, 2016).

One of the issues of not having a formal definition is the discrepancy between the notion of accessibility 'from' versus accessibility 'to' (Bhat, et al., 2002). Geurs and van Wee (2013) tried to reconcile these two notions, also called individual perspective and activity place perspective (Dijst, Jayet, & Thomas, 2002), and provided a more complete definition of accessibility:

> *'The extent to which land-use and transport systems enable (groups of) individuals to reach activities or destinations by means of a (combination of) transport mode(s) at various times of the day (perspective of persons), and the extent to which land- use and transport systems enable companies, facilities and other activity places to receive people, goods and information at various times of the day (perspective of locations of activities)'.*

Following this definition, the term 'access' or 'reach' is related to the individual/household perspective: the set of destinations that a person can reach from his/her origin location at a specific time, given the travel resistance (time, cost and effort) that this person is willing to accept. On the other hand, the term 'accessibility' (in the narrower sense) refers to the location of activities perspective and comprises the catchment area designated by the location of the people that can access that activity (*Figure 2.1*) (Geurs & van Wee, 2013). For this research, just the individual perspective has been considered.

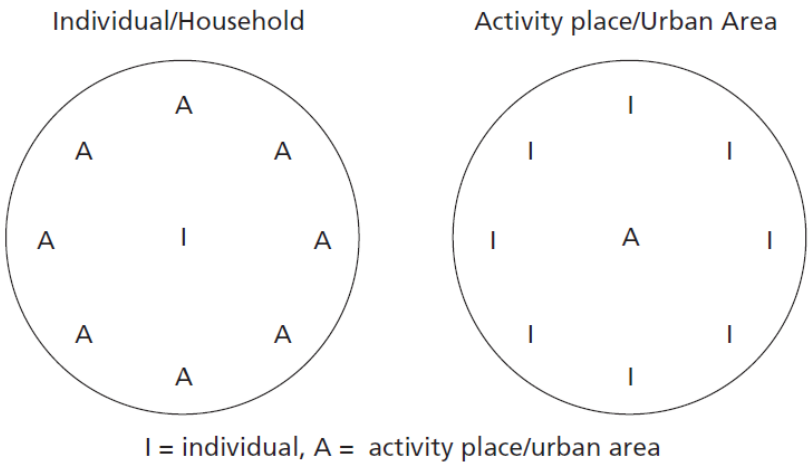

Figure 2.1: Two perspectives of accessibility. Source: (Dijst, Jayet, & Thomas, 2002)

2.2.1 Components of Accessibility

Different authors identify several diverse components related to accessibility. These components are highly related to the way that accessibility is measured and defined. Although there is not a consensus about the precise components of accessibility, most of the classifications present two components in common: the spatial distribution of opportunities/ activities/destinations, and the transport component.

The complete definition of accessibility provided by Geurs & van Wee (2013) incorporates the four components identified by Geurs & Ritsema van Eck (2001). Therefore, in order to keep coherence with this definition, the four components of this classification will be further explained (Geurs & Ritsema van Eck, 2001; Geurs & van Wee, 2013):

The **land-use component** refers to the land-use system, which can be split up in two elements: (i) the spatial distribution of opportunities supplied at each destination and its characteristics i.e. the location, amount, quality, attractiveness of jobs, schools, medical facilities, shops, etc. (ii) the spatial distribution of the demand for these opportunities and its characteristics (the location of inhabitants). Moreover, the interaction of supply and demand for opportunities can be a relevant factor in the land-use system when the capacity of the supplied opportunities is limited (for example, the case of schools, jobs or hospitals). Therefore, competition effects can influence the level of accessibility.

The **transport component** describes the transport system which can be break down into two components and its interaction: (i) the supply of infrastructure including its location and characteristics (e.g. maximum travel speed, number of lanes, public transport timetables, travel costs), (ii) the demand for both passenger and freight travel. The confrontation between supply and demand represents the characteristics of resulting infrastructure use (e.g. spatial distribution of road traffic, travel time). This confrontation creates a disutility for an individual to reach a destination using a specific transport mode, depending on three resistance factors: time, cost and effort invested by the traveller to cover the distance.

The **temporal component** reflects the temporal constraints. On the one hand, it involves the availability of opportunities at different times of the day, weeks, seasons, etc. On the other hand, it is also affected by the time available for individuals to participate in certain activities.

The **individual component** plays an important role in the level of access to social and economic opportunities. Three determinants that influence the individual component can be identified: (i) the *needs* that people have vary depending on their age, income, educational level, phase in life, etc., (ii) the abilities of people ,which depend on their physical capacity (e.g. cognitive, sensory, intellectual or physical disabilities) and on specific skills needed to use a transport mode (for example, capacity to drive a car), (iii) opportunities of individuals, which are related to their income, travel budget or educational level. The level of access to transport modes and spatial distributed opportunities is highly influenced by these characteristics.

Finally, a fifth component could be added when considering transport-related social exclusion. Lucas, van Wee, & Maat (2016) defined the **cognitive component** as the people's ability to interact with the transport system, including the experience of the transport system, people's travel horizons or other cultural factors.

As *Figure 2.2* shows, accessibility can be understood as the result of four components: the spatial or land-use component, which determines the spatial distribution of locations and availability of activities; the transport component that influences accessibility by travel time, cost, and effort constrains; the temporal component by time restrictions; and the individual component by people's needs, abilities and opportunities. In a reciprocal way, accessibility may also influence the four components (feedback relationships) as, for example, it is an important factor for location decisions for inhabitants and firms or the influence it has over travel demand.

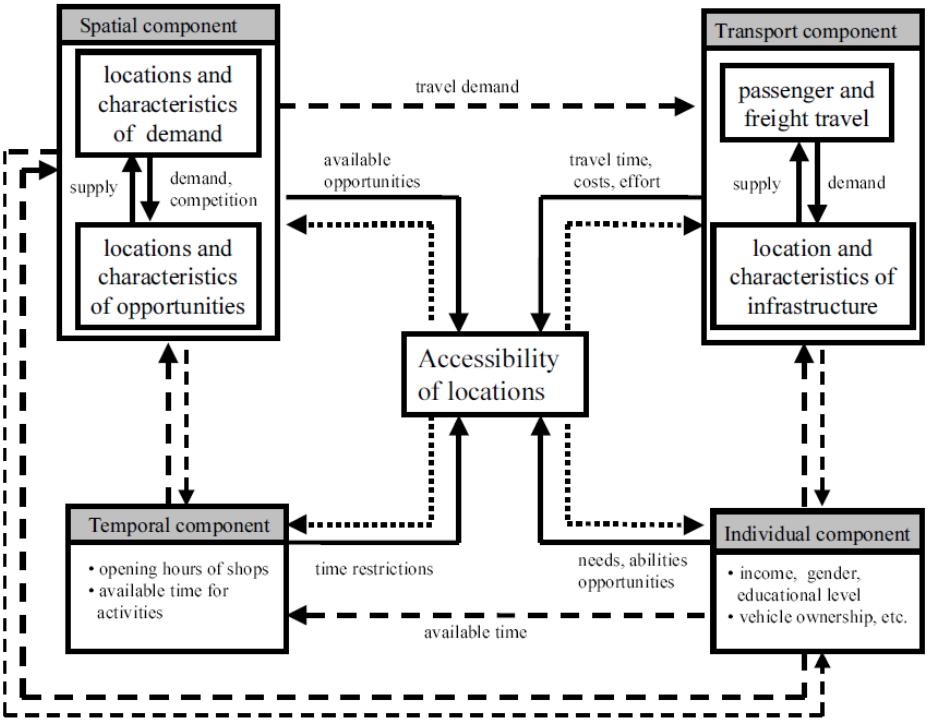

Figure 2.2: Relationships between components of accessibility. Source: (Geurs & Ritsema van Eck, 2001)

Furthermore, the different components also interact between them. For example, the spatial distribution of activities is an important factor for travel demand and may also introduce time restrictions or influence people's opportunities. There is also an interaction between the individual component and all other ones since a person's needs and abilities can influence the available time to engage activities, as well as his/her perceptions about time, cost and effort or about the types of relevant activities (Geurs & van Wee, 2013).

Several measures or indicators have been developed during these last decades in order to operationalize the concept of accessibility. Geurs & van Wee (2004) wrote one of the most complete and cited articles about accessibility measures, which include and extend previous works. Following their extended definition of accessibility, and the four components just described, an accessibility measure should ideally consider all these components. However, in practice, applied measures focus on one or more components. Four main types of accessibility measures can be distinguished (see Geurs & van Wee (2004) for more detailed information): infrastructure-based accessibility measures, location-based accessibility measures, person-based accessibility measures, and utility-based accessibility measures.

This research is manly related to the land-use component, specifically with the supply side and the location and characteristics of opportunities (although it can also have subsequent consequences related to other components). Changes in the location, amount, quality or attractiveness of destinations influence the total level of accessibility. Moreover, the demand for those opportunities should also be consider, as competition effects can occur in some destinations such as schools or hospitals.

2.3 The Economics of Accessibility

As mentioned in the introductory chapter, accessibility policies and changes can considerably influence people's welfare and quality of life. However, the effect of these policies is difficult to measure. In this case, the number of options available and their characteristics are non-market services, whose economic value is related to the impact they have on human welfare, measured in monetary terms. Cost Benefit Analysis (CBA), which are based on efficiency objectives in welfare economics, have been widely applied in numerous contexts, including transport planning. This approach evaluates the change in all individual's welfare caused by a new project or policy.

One common concept used to evaluate the benefits in CBA in transport related projects is the concept of 'Total Economic Value' (TEV). Humphreys & Fowkes (2006) defined an individual's TEV of a particular good or service as "the maximum value of that good or service, for that individual". Geurs et al. (2006) referred to the concept as "the sum of all relevant Willingness To Pay (WTP) values for an individual of any change in well-being due to a policy or project".

While the concept of TEV itself is widely accepted among academics, there is some debate about its definition and classification of components (Laird, Geurs, & Nash, 2009). Some authors (e.g. Chang, 2010; Laird et al., 2009) differentiate between use values, non-use values, and option values as independent categories. Others (e.g. Geurs, Haaijer, & van Wee, 2006), include option values in the category of use values, while it is conversely considered as a non-use value by several authors (e.g. Geurs & Ritsema van Eck, 2001; Humphreys & Fowkes, 2006). In order to avoid this classification discrepancy, Carson et al. (1999) differentiate between active and passive values. In this case, option values belong to the category of passive values, which are defined as the portion of the TEV that are left after measuring observed market behaviour.

For this research, use values, option values, and non-use values will be differentiated and defined. This choice is made because individuals can perceive these values differently and, consequently, their WTP can also be estimated separately (Chang, 2010).

2.3.1 Use, option, and non-use values

Use Values

Use values correspond to the value attached to actual or planned use of a particular good or service. Use values arise from the benefits of directly using a good or service (e.g. public education use or doing groceries in a specific supermarket) (Geurs et al., 2006). In general, these values can be derived from market behaviour.

Option Values

The concept of *Option Values* was firstly introduced by Weisbrod (1964) who suggested the idea that an individual would be willing to pay an extra amount in order to keep a service available in the future. Hansen & Beimborn (1987) referred to the concept as the value of 'goods or services that are used as a backup for another good or service, or that will be valuable in the future'.

Moreover, the concept of option value can have two different interpretations. One considers the option value as a *risk premium* that risk adverse individuals are willing to pay under uncertainty conditions. The second interpretation focuses on the intertemporal aspects and the *irreversibility* of a decision, also called 'quasi-option value'. The logic behind this concept is that by delaying a decision, more information can be obtained and, thus, the level uncertainty can be reduced. Therefore, that information should be valuable (Geurs & Ritsema van Eck, 2001). For this research, the first definition of option values will be considered.

Initially, option values were widely applied in financial markets or in the evaluation of environmental resources (Geurs & Ritsema van Eck, 2001). In the context of transport, several authors have defined the concept of option value. Humphreys & Fowkes (2006) defined this concept as the "utility that an individual, user or non-user, derives from the continued availability of a particular mode, within their choice set of potential modes, at a given fare level". Similarly, Chang (2010) defined it as "a traveller's willingness to pay for any possibility of use a transport service" and it is linked with how much an individual value the availability of a transport mode for trips not yet anticipated or currently undertaken by other mode. One example may be the evaluation of public transport (bus or rail service) by a car owner when he/she cannot make use of the car for whatever reason related to uncertainty (due to unavailability of the car, disability to drive, bad weather, etc.). These definitions of option value match with the first interpretation that considers option value as a risk premium.

Although there is consensus about the relationship between option value and uncertainty in the transport context, some authors differ in the nature of that uncertainty. On the one hand, Laird et al. (2009) just consider uncertainty on the demand side, taken the transport system as given. On the other hand, Bondemark & Johansson (2017) differentiate between two types of uncertainty: the uncertainty of supply (the availability of transport services), and the uncertainty of demand since individuals do not certainly know their preferences about the services they will demand on the future.

Moreover, individuals can also assign option values to destinations (shops, medical services, restaurants, etc.). In this way, Bondemark & Johansson (2017) state that individuals value both having alternative transport modes that they infrequently (or not at all) use, and having access to destinations that they do not usually (or not at all) visit. Consequently, the transport and land-use system work interdependently to provide options of different kind. These authors wrote the most relevant article that links option value with the total level of accessibility. They propose a model based on the log sum measure that incorporates the concept of uncertainty. The authors concluded that the size of the premium that risk averse individuals are willing to

pay is a function of four factors: the (uncertainty of) individual's preferences in terms of demand, the (uncertainty of) options available, the quality of these options, and how the risks of unavailability of the options as well as the demand of the different options are correlated.

In this way, if the options available are considered as similar by an individual and there is a high probability that these options are unavailable (or undesired) at the same time (highly correlated), the size of the premium that the individual is willing to pay to keep those options available will be low. If, on the other hand, the options are perceived to be different (in terms of quality, costs, or other preferences) and the risk of unavailability is sufficiently uncorrelated, the willingness to pay to keep the option available will be high. Moreover, as long as these risks are not perfectly correlated, every additional option will reduce the total risk of not fulfilling the individual needs. However, the benefit of each additional option is lower than the previous one (Bondemark & Johansson, 2017).

One of the key points that the authors highlight on their paper is the fact that it is not the trip itself what gives value to travellers, but the actual or potential benefit of reaching the destination. Although the article provides some insights about the link of option value and accessibility, there is no empirical evidence that supports the conclusions.

Non-use values

Non-use values relate to the benefits obtained by the continued existence of a good or service regardless any possibility of future use (Chang, Estimation of option and non-use values for intercity passenger rail services, 2010). Geurs et al., 2006 classify the benefits of non-use values in the context of public transport in three cathegories:

- *Existence values* reflect the WTP to keep a good or service in existence when individuals have no actual or planned use for them or anyone else. These types of values are mostly considered in environmental economics, where existence values are attached to natural environments or wildlife. However, it is more unlikely that the transport infrastructure provides a pure existence value derived from the mere contemplation of the object. Some destinations could have existence values due to cultural or historical relevance.

- *Altruistic values* are related to the WTP to preserve a service that can be beneficial for others, e.g. friends, relatives, or society in general. People may be willing to pay more in order to keep a service that is used by members of their household, friends or relatives, but also for services that benefit specific groups of society (e.g. the poor, the elderly, children). There is a specific form of altruism called bequest value that arises when individuals are concerned about the availability of the service for future generations.

- *Indirect user benefits* are derived from the use of a service by other people. Some examples of indirect benefits could be the possibility of receiving people that uses public transport and who would otherwise not be able to make the trip, the reduction in congestion and/or environmental degradation, or the improvement of safety. Moreover, they can also be benefited by an increased value of their homes or local economy.

2.3.2 Hicksian welfare measures

One of the microeconomic theories that is relevant for this research is the one proposed by Hicks. He defined four measures to assess any change that affects an individual's welfare, holding utility constant, also known as Hicksian welfare measures (OECD, 2018). These measures are differentiated by two dimensions (*Figure 2.3*): i) the implied property right's point of reference; ii) the nature of the change. Regarding the first dimension, the point of reference can be the status quo (compensating measures) or the new situation (equivalent measures). Related to the second dimension, there could be a change in price when, as a response, the individual can vary the quantity of the good or service of interest (variation measures) or the change could be in the quantity or quality of goods or services, where the individual can only buy/use fixed amounts (surplus measures).

		Point of reference	
		Status quo	New situation
Nature of the change	Price	Compensating Variation	Equivalent Variation
	Quantity/ Quality	Compensating Surplus	Equivalent Surplus

Figure 2.3: Hicksian welfare measures

If these measures are applied to the purpose of this research, it is more convenient to focus on surplus measures since individuals can only visit fixed increases or decreases in the quantity or quality of activities available, which are non-market services.

In this research, the change of interest (i.e. the number of options available) can have a positive or negative effect on people's welfare. In this way, 'Compensating Surplus' and 'Equivalent Surplus' can be translated in terms of Willingness-to-pay (WTP) or Willingness-to-accept (WTA) as the following table shows:

Table 2.1: : Hicksian compensating and equivalent surplus measures of welfare. Source: (OECD, 2018)

	Compensating Surplus (CS)	**Equivalent Surplus (ES)**
Welfare gain	(1) WTP to secure the positive change	(2) WTA compensation to forgo the positive change
Welfare loss	(3) WTA compensation to put up with the negative change	(4) WTP to avoid the negative change

Linking the definition of Total Economic Value proposed by Geurs et al. (2006) and Hicksian welfare surplus measures, just WTP measures are relevant when evaluating any change on an individual's well-being. Moreover, WTA measures are not recommended in this context because they are substantially higher than WTP for non-market goods (Horowitz & McConnell, 2002).

To illustrate these concepts with an example, suppose that a neighbourhood currently has 2 schools, but dwellers believe that more are needed. If an additional school is created, this change would be considered as a welfare gain, and people may be willing to pay some amount to secure this positive change (Compensating surplus). On the other hand, imagine that one of the two current schools is thinking to close. This change would be perceived as a welfare loss, and they would be willing to pay to avoid this negative change (Equivalent Surplus). The opposite happens if individuals initially consider that there are too many schools in their area (maybe because it is an aged neighbourhood). In this case an increase would be seen as a welfare loss, whereas a decrease as a welfare gain.

2.3.3 Law of diminishing returns

As has been already mention in the introductory chapter and the option value section, utility is subjected to the law of diminishing returns. That means that the marginal utility derived from an increase in the number of options available will drop with a higher initial level of accessibility experienced by an individual, all else equal (Martens & Di Ciommo, 2017). In this way, an individual with a relative initial small choice set of a particular destination type is expected to attach higher value to the addition of an extra destination, than a person with a larger initial choice set (*Figure 2.4*) (Martens, 2006).

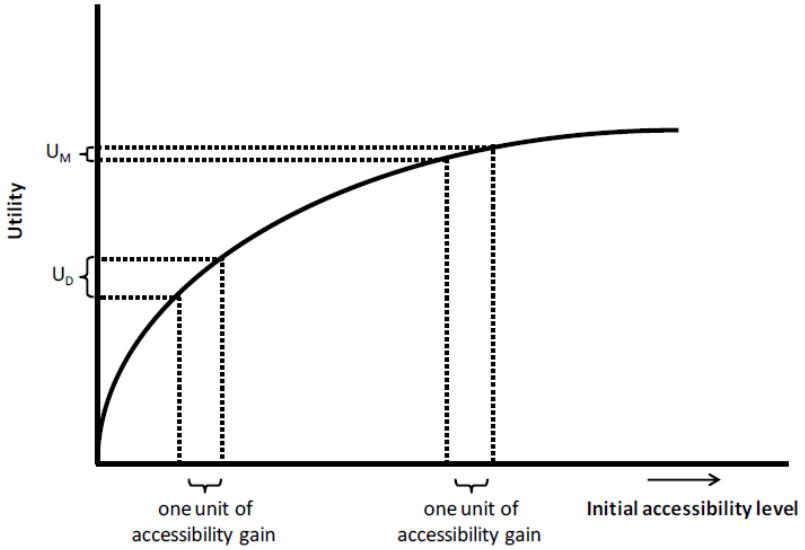

Figure 2.4: Graphical representation of the law of diminishing returns of accessibility gains (Martens & Di Ciommo, 2017)

Most kind of destinations exhibit this pattern of diminishing returns or marginal utility, for instance education, employment, leisure activities or food stores. However, the scale of choice would be influenced by the nature of the destination (Metz, 2008).

2.4 Measuring Economic Values

Measuring economically preferences, option and non-use values is not a trivial task. In general, it is not possible to apply Revealed Preference (RP) methods to measure these values because they do not leave behavioural trace and they are not a market good (Chang, Cho, Lee, Kim, & Yun, 2012; Bondemark & Johansson, 2017). Instead, Stated Preference (SP) approaches are generally taken. SP techniques are very flexible and, since they do not rely on existing markets and are based on hypothetical situations, they can be applied to almost all non-market goods or services, to both past and future changes, and can even capture all types of benefits including non-use values, which makes them the most appropriate method to apply in this research (OECD, 2018).

Stated Preference techniques can be subdivided into two groups: Contingent Valuation Methods (CVM) and Choice Experiments (CE), also called Conjoint Analysis. CVM directly ask the WTP when there is a hypothetical change in the quantity or quality of a non-market good or service. On the other hand, CE ask respondents to choose the most preferred alternative from a set of options with different attributes, and then, monetary values can be estimated indirectly if a price attributed is included (Geurs, Haaijer, & van Wee, 2006). Both approaches present several advantages and disadvantages. CVM can suffer from cognitive stress, starting-point bias or strategic bias. Moreover, they do not accurately measure the value of goods when they present

a strong non-use component, when the respondent has little experience, or when the hypothetical context is unrealistic (Geurs et al., 2006; Chang et al., 2012). On the other hand, Chang (2010) stressed that CE would not be very useful when something in its entirety is investigated and that they would be more appropriate when a factor in question belongs to a set of components of a something.

CVM is a quite common method that many researchers (e.g. Humphreys & Fowkes, 2006; Chang et al.,2012; Johnson, Jackson, & Nash, 2013; Chang, Jung, Ross, & Kim, 2017) have applied to obtain estimates about use, option and non-use values of non-market goods or services. Due to its simplicity, it will be the stated preference method that will be used in this research. Contingent Valuation Methods aim to estimate how much accepting or avoiding a hypothetical change is worth to individuals. This worthiness should be express in monetary terms, that is, the objective of CVM is to find out people's maximum willingness-to-pay (WTP) or minimum willingness-to-accept (WTA) (OECD, 2018). CVM can be jointly used with other techniques such as the travel cost method or hedonic approaches. The latter refers to indirect approaches that can estimates WTP based on house prices.

There are many examples in the literature about the use of Stated Preference approaches applied to the transport system. However, the case is not the same when analysing destinations themselves, making it difficult to apply these methods directly in this research. Therefore, a first explorative research is recommendable before designing the Contingent Valuation method.

2.5 Evidence in Spain

During the last decade numerous initiatives and agreements have arisen to improve the quality of cities in Spain. Some of the most relevant projects are the *Local Agenda 21* and the *Municipal System of Sustainable Indicators*. One of the subobjectives of these programs was to measure the number of activities (schools, medical services, food stores, etc.) per habitant. The most recent project related to the topic is the Urban Agenda 2019, in which there is a specific indicator that measures the percentage of population next to the main basic services, establishing different levels of proximity for each service (food and dairy products, education centres, medical services, sport centres, etc.) (Agenda Urabana Española, 2019). This indicator can be very useful to compare the number of destinations in different cities.

Apart from the initiatives proposed by the government, there has been other private/collaborative campaigns, from which it should be highlighted the organization called *Ebropolis*. This association is dedicated to the development of the future strategy of the city of Zaragoza and surrounding towns (Ebropolis, n.d.). It has developed exhaustive studies about the city and its neighbourhoods, in which the research team has analysed all the services, equipment, destinations of the city, and the level of proximity, using geographic information systems (Ebropolis, 2013). The results obtained have been very useful to detect areas with lower accessibility levels to destinations, to identify vulnerable regions prone to social exclusion, or to provide information for the location of new activities. However, neither this study nor the indicators mentioned before, consider the preferences of people, option values, or how people value having different options, they just ensure that people have access to basic services and destinations based on distance measures.

2.6 Conclusions

Research about the economics of accessibility is still in its infancy. Most of the research that has been done until now about this topic has focused on the quantification of economic values for public transport services. However, there is a practically unexplored field about the quantification of economic values (both use and non-use values) to destinations themselves or to accessibility in general, which is the focus of this thesis. According to the law of diminishing returns, every additional unit of accessibility gain add less value than the previous one. However, no research has been done yet to quantify the added value of each unit, or even to test whether this theory holds.

In order to assess the economic values derived from different levels of accessibility, researchers have applied Stated Preference techniques. However, due to the novelty of this topic, a deeper exploratory research is needed before applying any stated preference approach.

Focusing on Spain, there has been some initiatives that aimed to measure the level of accessibility to basic services and equipment. However, they just consider distance measures and do not recognize the importance of people's preferences and needs, or the benefit they derive form the availability of a certain number of services.

3 RESEARCH METHODOLOGY

3.1 Introduction

The goal of this chapter is to describe the proposed research methodology to answer the research questions formulated. The present chapter first describes and justifies the study area in which the research has been carried out. Then, the research strategy is explained, which is based on the theorical foundations explained in the previous chapter. It basically consists on a preliminary research about the study area, an exploratory questionnaire, and a second questionnaire aimed to elicit monetary values using a Contingent Valuation approach. Finally, the data collection methods as well as the process and tools used for analysing the data are described.

3.2 Study Area

The population under study are the citizens of Villarrobledo, a Spanish city located in the autonomous community of Castilla-La Mancha. This case city has been selected because of the author's familiarity with the area and the potential access to local administrations and associations, which has facilitated the data collection process and other information needed.

The city has a population of 25,241 inhabitants and it represents an important urban core for the region, offering a complete variety of services from well-known supermarket chains to all kinds of medical services. Villarrobledo is characterized for having the world's largest area covered by vineyards and its economy is mainly based on the primary sector and the transformation of these products.

For this kind of research, the target population should represent a manageable area. This means that it should be big enough in order to obtain significant results, but not too large because it would be unfeasible to consider all the options available within the area. For bigger cities, the analysis should be focused on a neighbourhood level so that dwellers are familiar with the destinations they usually visit. Later in *Chapter 5*, the choice of the study area as well as the generalizability of the results will be discussed.

3.3 Research Strategy

The nature of the research has been mainly exploratory, in addition to a subsequent descriptive/quantitative part. The reason for this choice is that not much is known about the quantification of Total Economic Values of destinations, and there is not enough theory available to guide the development of a theoretical framework (Sekaran & Bougie, 2016).

First of all, a preliminary research was carried out to better understand the context in which the research would be developed. This information served as input for the design of an initial questionnaire, which was mainly explorative. The aim of this first questionnaire was to provide information to answer the first three sub-research questions. Once the activities and destinations that are considered most important regarding having multiple options to travel to were identified, some additional information was gathered to recreate realistic scenarios in the quantitative questionnaire. This second questionnaire was done to obtain some rough estimates about the total economic value for two destinations. Its design was based on the theoretical foundations described in *Chapter 2*, providing information to answer the last sub-research question and, all together, to answer the main research question (see *Figure 3.1*).

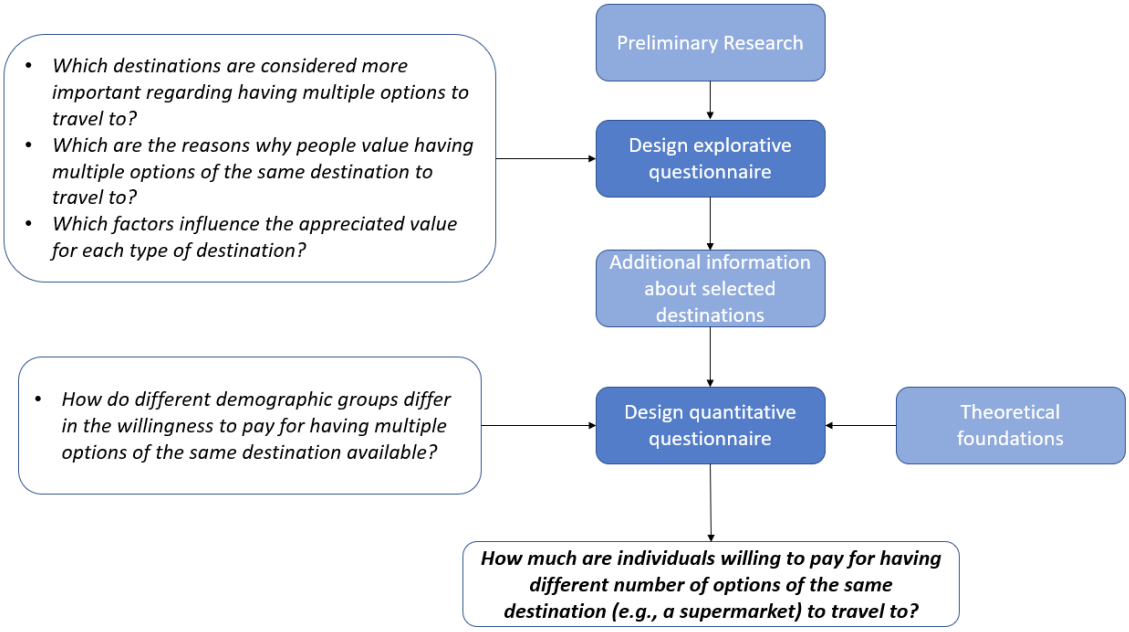

Figure 3.1: Research strategy summary

In the following section, a more detailed description of the research strategy is provided, describing the preliminary research and the two different questionnaires. As the study area belongs to Spain, the language of both questionnaires was Spanish. However, an English version has also been created so that it is accessible to more people. The complete questionnaires can be found in Appendix A.

3.3.1 Preliminary Research

Before start elaborating the first questionnaire, it is essential to understand the context and the culture of the study area in which the research takes place. In order to obtain deeper knowledge about the population, some information was gathered. Three main blocks are proposed to obtain this preliminary information:

- **Sociodemographic characteristics**

It is quite important to describe the sociodemographic characteristics of the population in order to understand some behaviours. As van de Coevering & Schwanen (2006) comment in their article, not only the land-use system influences travel behaviour, but also socio-demographic structure, housing structure, and urban development history. Moreover, travel behaviour is contextual and contingent upon local and regional conditions. In order to understand the current situation, a city's urban development through time, in addition to cultural and institutional factors should be considered (van de Coevering & Schwanen, 2006). For instance, it is not the same to analyse a population in which most of the people are students than another one in which there is a high percentage of elderly people. Also, the situation is very different in cities that are expanding or growing than in cities whose population is decreasing.

Some of the information that was considered useful for this research includes: the evolution of the number of inhabitants during the last 10 years, the population density and its comparison with similar cities from the region, whether there are different population densities within the area under study, etc. It is also interesting to analyse the population pyramid in order to know the distribution by age and gender.

- **Number of facilities, location, and characteristics**

Having a picture of the current situation is essential for recreating realistic situations in following questionnaires. Therefore, for the services and destinations chosen, the number of facilities, its location and any kind of relevant characteristic has been described.

The type and number of the different destinations evaluated will depend on the context and scope of the research. Therefore, the first step was to decide which destinations were going to be analysed. It is obvious that the more destinations or activities that are included, the more complete the research will be. However, it would be unfeasible to consider all kinds of activities that a city or neighbourhood offers. Moreover, due to the novelty of the research and time limitations, a careful selection of destinations must be made. The first questionnaire served as a filter to know which destinations were considered more important regarding having multiple options available, but still a selection had to be made before, in order to design a manageable first questionnaire. Therefore, several criteria have been applied to choose the destinations that were deeply analysed and included in the explorative questionnaire.

Initially, the principal basic services described in the indicator 2.1.2. of the Spanish Urban Agenda 2019 were considered. This guide describes eight different groups, which are: food and dairy products stores, educational centres, health centres, social centres, cultural centres, sport centres, entertainment centres, and selective waste collection points. Considering the scope of this research and the characteristics of the city, some groups were discarded or redistributed. For instance, according to the Urban Agenda, cultural centres include destinations such as libraries or museums. In the case of Villarrobledo, one of the libraries simultaneously functions as a museum, and the city has no additional cultural centres. Therefore, libraries were considered part of the educational centres' category, and the cultural centres' group was not included. Likewise, selective collection points have neither been included as they are not relevant for this research.

Other criteria applied to select the destinations has been the number of potential users and the frequency of service's use. In order to obtain higher response rates and representative results, destinations where almost everyone goes in their daily life are preferred. Therefore, activities related to social or entertainment centres have been excluded. Finally, other destinations such as hairdressers, restaurants, parks, or clothes shops, which do not appear in the Urban Agenda, were considered as potential candidates. There was no formal criterion to select some of them, but just the author's experience. At the end, hairdressers and clothes shops were included in the questionnaire.

After selecting the final categories of destinations (food and dairy products stores, health centres, educational centres, sport centres, hairdressers, and clothes shops) that were going to be further analysed, a level of disaggregation had to be decided. Again, there is a trade-off between the level of accuracy of the research and its complexity. The more disaggregated the categories are, the more complete the research will be, but the more difficult and tedious will be to collect information and extract useful conclusions. Therefore, some of the categories were disaggregated in subcategories that are easily identifiable by the respondents and satisfy the criterion of number of users and frequency usage. Moreover, both public and private services have been considered to identify whether there are differences for each type of service. The next table shows the final categories and subcategories that will be included in the research:

Table 3.1: Destination types included in the research

Category	Subcategory
Food stores	Supermarkets
	Butcheries
	Fruit shops
	Local food stores
Health	Hospital
	Health centres
	Pharmacies
Education	Kindergartens
	Primary schools
	Secondary schools
	Libraries
Sports	Public sport facilities
	Gyms
Other services	Hairdressers
	Clothes shops

Once the categories and subcategories of destinations were defined, a deeper analysis has been done in order to know the current number of each type of destination. Then, each activity has been represented in a map, which provided useful information about the identification of isolated areas, patterns of mobility, cluster of activities, etc. The map also includes a distance buffer for each location. The distance criterion has been determined by the indicator 2.1.2. of the Spanish Urban Agenda 2019. Finally, it is important to notice that there are some regulations regarding several destinations which influence the number of options available such as maximum/minimum number of pharmacies per habitant or the selection process for educational services. Therefore, any legal feature that is relevant for the research has been described.

- **Local forums, news, and social media analysis**

Scanning local forums, digital newspapers or social media was used to provide information about certain facts that are relevant for the research. By searching on the internet, concerns and complains of the population have been identified. It has also been useful to know whether a service is saturated or, whether on the contrary, people perceive that there are many services compared to the demand. However, this information should be analysed critically as it may not represent the majority opinion of the population and may be biased.

Finally, there could be past projects related to the topic in the area under study or the region/country to which it belongs. Although it is not very likely that these projects provide the precise information that it is needed, they can reveal useful information about accessibility or any kind of preferences from the population. In this case, information about the initiatives related to the Local Agenda 21 in the line of urban development were consulted. Moreover, an informal interview was made with one of the managers of the local government about urban development.

It is important to mention that this preliminary research is specific to each city or neighbourhood, and that the results obtained or even the information that is considered to be relevant will vary depending on the culture of the city and the specific time at which the research is carried out.

3.3.2 Explorative Questionnaire

Once conclusions were extracted from the preliminary research, the first questionnaire was designed. The aim of this questionnaire is to answer the first three sub-research questions, in addition to present the topic to the respondents and narrow the research to a few types of destinations. Therefore, information was gathered to answer questions like why people may value having multiple options of the same destination, which destinations people care most to have multiple options, or which factors influence the appreciated value for each type of destinations. To design the questionnaire, no formal methodology has been followed. The information obtained during the preliminary research and the research questions have provided insights to formulate the questions.

Structure of the questionnaire

The questionnaire has been structured in three main blocks. First of all, there is an opening statement in which the respondents give their consent to use their data and the objective of the project is explained. Then, the first block contains an introduction to the topic for the respondent and a general question about the importance they give to having multiple options of each destination. In the following question, the surveyed had to choose the categories of services he/she wants to answer. The aim of this question was to reduce the length of the questionnaire to avoid incomplete responses and prevent potential boredom, irritation or fatigue. In this way, each person could choose the number of services that he/she wants to answer (at least two) depending on their interests and time available.

The second block is related with specific questions about each destination type, according to the five destination groups that have previously been described. Within each group different detailed questions were asked. To design these questions, it has been very important to understand the particular features of each destination. For example, there are some activities in which one can freely choose the destination he/she wants to visit (supermarkets, sports, clothes shops, etc.) and one can change his/her choice whenever one wants. However, there are other destinations such as schools or medical centres in which the options are restricted, and one cannot easily change from one to another. Moreover, the reasons why people may value having multiple options also vary depending on the destination type. For basic services like supermarkets or schools, people may value having alternative options to secure that basic service for all the population. On the other hand, the motives why people may value having several options for secondary services such as sport facilities, restaurants or clothes shops can be more related with personal tastes, variety, or temporal trends. Finally, it is also important to distinguish between public and private services since people's perceptions might be different for each type of destination. All these considerations, in addition to the information and facts resulting from the preliminary research, have been taken into account when designing the explorative questionnaire.

Finally, the last block contains demographic questions in order to describe the sample characteristics. It has also been useful to analyse relationships between the responses and different demographic groups. It is important to mention that the personal information gathered was not enough to identify the respondent, keeping their anonymity.

All the questions asked were closed-ended in order to make it easier for the respondent to answer. There was also an open-ended question at the end of each destination block in case the respondent wanted to give some additional information.

3.3.3 Quantitative questionnaire

As already mentioned, Stated Preference approaches are preferred when economic values from non-market goods must be derived. In this case, a Contingent Valuation approach has been applied. According to the results of the first questionnaire, two destinations were chosen in order to estimate the WTP for having a different number of options available, which are kindergartens and primary health centres. Before designing this contingent questionnaire , a deeper analysis has been done to gather some additional information about these destinations (detailed in *Chapter 4*). Some of this relevant information to design the second questionnaire is related with current capacity of the destinations or current fees.

Structure of the questionnaire

After an introduction in which the topic is presented and permission to use the data is asked, the questionnaire has been subdivided in three parts: i) behavioural and attitudinal questions, ii) the contingent valuation situation and elicit question, iii) Sociodemographic questions. The first two parts are replicated and adapted to each destination type, while the last one is unique. Each part is described below in more detail, explaining and justifying the decisions made to design this questionnaire.

i) Attitudinal and behavioural questions

The first part consists on attitudinal and behavioural questions about the service. These questions are useful to introduce the topic to the respondent and to identify the most important factors driving individual's attitudes towards the destinations at issue. In this research, this part has been mainly covered by the first questionnaire. However, as some people could not have completed the first questionnaire, some general questions have been asked at the beginning.

Regarding kindergartens, the first block of questions aimed to group respondents into four categories: users, option users, non-uses who care about the service, and non-users who do not care about the service. Respondents were classified as users if their children went in the past, or currently go to a public kindergarten. Those who would probably make use of the service in the future and prefer public kindergartens were classified as option users. Finally, people who do not have children and believe that they would not make use of the service in the future, or that prefer private kindergartens, were considered non-users, distinguishing between those who care about the service and those who are indifferent. This classification process is summarized in *Figure 3.2.* These groups have been differentiated to adapt following questions to their situation and compare the results of the elicit question.

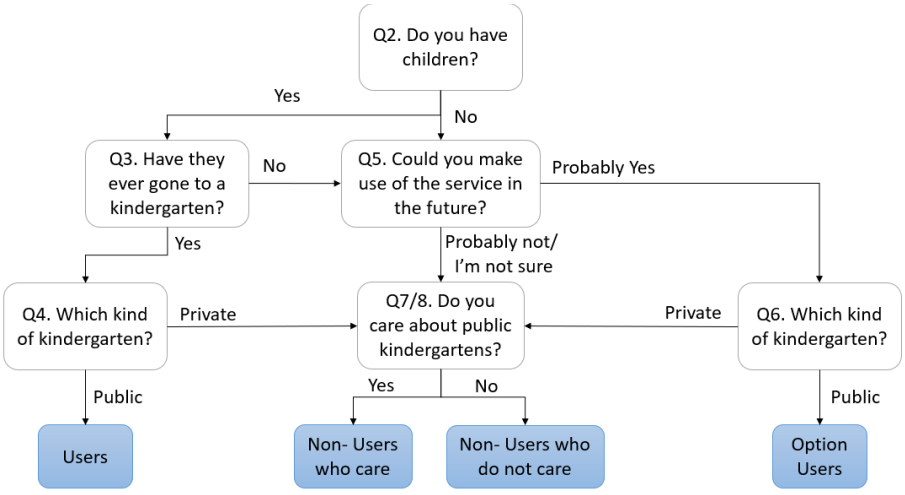

Figure 3.2: User, option user, and non-user classification procedure for kindergartens.

For the primary health centres all citizens are considered potential users as health services are public in Spain. In order to make different groups, respondents had to state the frequency with which they visit their family doctor. Moreover, they were also asked whether they had used any private service in the last 12 months. In this way, if they visit their family doctor frequently (more than once every three months), they were considered users. On the other hand, if they visit the health centre infrequently and do not make use of any private service, they were classified as option users. Finally, if they are infrequent users and do make use of private services, they are considered non-users. In addition, they had to evaluate their level of satisfaction about different aspects of the current health centre, such as waiting time since they request the appointment or their doctor's schedule.

ii) Contingent Valuation elicit question

This second part represents the core of the survey, the contingent situation is presented, and respondents are asked for their monetary valuations. In order to obtain meaningful results, it is very important to formulate the elicit question properly. Three elements can be distinguished in any Contingent Valuation question (OECD, 2018):

- *The change being valued*

The first step is to identify and have a clear idea of the change that is wanted to be valued. That is, which specific non-market good or service wants to be analysed and which exact quality or quantity change is of interest. In this research, the two selected destinations are the non-market services. The specific change that has been valued is the supply of these particular services, considering not only the quantity of options available, but also extension in the schedule or capacity of current locations, which also influences the total level of accessibility. The current situation has been established as the reference point to facilitate the contingent process for respondents. Then, increases and decreases in the supply of the service have been suggested. As mentioned in *Chapter 2*, depending on the perceptions of people about the current number of options, individuals can consider an increase/decrease of the options available as a welfare gain or loss.

- *Constructing the hypothetical scenario*

One of the most important aspects to obtain accurate and realistic responses is to provide a good description of the hypothetical scenario as well as the right payment method. In order to recreate the most realistic situation, the hypothetical scenario for this research will be constructed with the information provided by the preliminary research, first questionnaire results, and the additional information gathered.

First of all, the questionnaire should provide a description of the change of interest. Before describing the hypothetical scenario, a description of the current situation has been provided. For both destinations, a map which shows the number and location of current facilities has been included. Moreover, information about the schedule and current capacity of each kindergarten has been described, as well as current monthly fees for kindergarten users. Finally, it is also important to mention substitute services so that respondents have a full picture of the current situation. Therefore, for both destinations, private facilities have also been indicated.

In spite of the decreasing trend in the population, the demand for public kindergarten services has remained constant and has even slightly increased in the last year. Therefore, two hypothetical situations have been presented for kindergartens. In the first one, current demand increases, whereas in the second, current demand upholds or slightly decreases. In the first case, it was also asked the preferred way to increase the supply of this service (expanding the schedule

and the number of classes of current facilities versus opening a new kindergarten). Moreover, for both past users and potential users, there was a suggestion to imagine themselves in the situation as if their (future) children are currently going to the kindergarten. Regarding the medical centre, just the case in which the level of service is increased was contemplated since the results from the first questionnaire indicated that almost 60% of the respondents believe that current primary health services are not enough. Also, for this destination, some alternatives were given to expand the service :extend the schedule of the current one to the afternoons, or finish the building of a second one, whose construction was stopped in 2008.

It is also recommendable to provide a description of the constructed market, which refers to the social context of the change. In this case, as both destinations are public services, it is implicit that the local and regional governments have the authority to make the change.

Finally, a description of the method of payment should be clearly defined. Regarding how the provision of the service will be financed, it can be distinguished between voluntary payment vehicles (such as donations or gifts) and coercive payment vehicles (like taxes, rates, fees or prices). These different mechanisms are a non-neutral element of the questionnaire and it should be selected depending on the good or service under study and its context (OECD, 2018).

For kindergartens, two different payment mechanisms have been selected depending on the previous classification of the respondent. It is relevant to mention that kindergartens in this city are a semi-public service which is funded by monthly fees payed by users (regulated by the local government) and municipal taxes. Therefore, users and potential users were asked about monthly fees as they would be directly affected by any change in these surcharges. On the other hand, for non-users, taxes have been used. In the case of medical centres, just taxes were used as it is the only way to collect funds for this service.

- *Eliciting monetary values*

Once the hypothetical scenario and the payment mechanism have been presented, a specific question was asked to determine how much the respondents would value the service in the new situation. This elicitation question can be asked in several ways, which are summarized by an example in the following table.

Table 3.2: Example of elicitation formats. Adapted from (OECD, 2018)

Elicitation Format	Description
Open ended	What is the maximum amount that you would be prepared to pay every year, through a tax increase, to have an additional medical center with the conditions I have just described?
Bidding game	Would you pay 5€ every year, through a tax increase, to have an additional medical center with the conditions I have just described? If yes: keep increasing the bid until the respondent answers No. Then the maximum WTP is elicited If no: keep decreasing the bid until the respondent answers Yes. Then the maximum WTP is elicited
Payment card	Which of the amounts listed below best describers your maximum willingness-to-pay every year, through a tax increase, to have an additional medical center with the conditions I have just described? List (0, 0.5€, 1€, 2€, …., >20€)
Single-bounded dichotomous choice	Would you pay 5€ every year, through a tax increase, to have an additional medical center with the conditions I have just described? (The amount is varied randomly across the sample)
Double-bounded dichotomous choice	Would you pay 5€ every year, through a tax increase (or surcharge), to have an additional medical center with the conditions I have just described? (The amount is varied randomly across the sample) If yes: and would you pay 10€? If no: and would you pay 1€?

Different elicitation approaches lead to different estimates. Therefore, it is a non-neutral element of the survey and its choice is really important. For more information about each approach, and their main advantages and disadvantages see OECD (2018). For this research the payment card approach has been used because it is more informative than bidding games and cheaper to implement than single or bounded dichotomous choice methods (Bateman, et al., 2002).

It is important to recall that just WTP values were asked. For the case of service expansion, the WTP to secure the expansion was asked. Therefore, if individuals consider that it is a positive change, the value should be greater than zero, whereas if they believe that the change would not add value, they would not be willing to pay anything. On the other hand, in the case of the decrease in the supply of kindergartens, respondents were asked their WTP to maintain the current level of service. In order to facilitate the elicitation process, exact amounts were given, instead of percentages.

One of the key points when designing a contingent question using payment cards is to decide the number and precise values of the possible options given to the respondents to choose their maximum WTP. In the case of kindergartens, it is important to give a wide range of values for users and option users, as current monthly fees are not fixed, and they depend on the families' income. A total of five values from 4 to 20 € was provided in addition to the option of >20€. This maximum value has been established considering past fees which were up to 20€ higher in some cases. When the payment mechanism was taxes, which are paid annually, equivalent annual amounts to the monthly fees were calculated, so that values can be compared later in the analysis. Finally, for the medical centre contingent situation, in which taxes are also the payment mechanism, same the same values than in the kindergarten case have been used to keep the coherence throughout the questionnaire.

After the elicitation questions, some follow-up questions were asked as they are useful to understand why respondents were not willing-to-pay for the change proposed, which can also help to identify invalid or protest answers. When a respondent does not state his/her true WTP for que service in question for whatever reason, it can be classified as a protest bid. It is very important to identify protest answers and treat them correctly to obtain unbiased results. However, there is no consensus in the literature about the definition or classification of protesters, neither about how they should be treated in the analysis. Not all zero WTP values should be considered as protest answers as they may be true values, like when the respondent prefers the status quo to the situation proposed (Frey & Pirscher, 2019). For this research, when respondents answered that they would not be willing to pay for the change proposed or that they do not care about the service, several reasons were asked. *Table 3.3.,* which is inspired by Chang et al. (2017), shows how respondents were classified according to the reasons they selected.

In brief, if the reason was related to the payment mechanism, the trust on the government, or the respondent did not have enough information to answer, it was classified as a protest bid. On the other hand, if the reason was linked to the service itself or the respondent could not afford to pay more, it was considered a non-protest bid. Finally, an open option was given to the surveyed to state alternative reasons.

Table 3.3: Debriefing question. Adapted from Chang et al. (2017)

Non-protest bids
I cannot afford to pay more
It is not a priority service
I would not benefit from the change
I prefer private services
Protests bids
The service could be extended with current taxes and fees
Monthly fees should be increased instead of municipal taxes
Municipal taxes should be increased instead of monthly fees
Much money has already been spent on this service
The extra taxes would be used to other purpose
I do not have enough information to answer

iii) Sociodemographic questions

Finally, like in the first questionnaire, sociodemographic questions have been asked in order to assess the representativeness of the sample and to analyse how WTP vary according to respondents' demographic characteristics, which is related with the fourth sub-research question. The surveyed were also asked whether they had filled in the first questionnaire.

3.4 Data Collection Methods

As already mention in this chapter, the primary data collection method used to obtain information to answer the research question(s) has been questionnaires. On the other hand, several secondary data sources haven been consulted to find useful information during the preliminary research.

As for the primary data collection method, questionnaires can be administered personally or online. Each method presents several advantages and disadvantages. However, Lindhjem & Navrud (2010) concluded that there are not significant differences between CV results obtained by internet or in-person administration. For this research, online questionnaires were distributed to Villarrobledo citizens. Online questionnaires are often used to gain deeper understanding of consumers' opinions and preferences, which make them the perfect method for this research.

The main advantage of this type of questionnaires is that they are easy and fast to distribute. One can send invitations by email, post a link on a website or use social networks. Moreover, the data is automatically stored in data bases, which facilitates the following analysis. They can also provide access to groups and individuals who would be difficult to reach through other channels. Other advantages are that they are inexpensive (particularly when compared with face-to-face interviews), respondents may feel more comfortable answering sensitive questions and the answers can be anonymous.

Needless to say that online questionnaires also have some disadvantages, but they can be mitigated. They could present sampling problems, being difficult to obtain a representative sample because of self-selection and low response rates (Sekaran & Bougie, 2016). Moreover, internet-based methods could not reach all population groups, especially the elderly. To avoid these problems, different channels have been used in order to reach a representative sample of the population. Social networks were used to approach younger people while personal contacts were useful to reach mid-age respondents. However, it has been difficult to obtain answers from people older than 60. Initially, alternative face-to-face questionnaires were planned if it was

considered that some groups were excluded from the online survey. However, due to the exceptional situation in which the research has been developed (lockdown due to COVID-19), it has not been possible to perform these face-to-face questionnaires. Another pitfall of online questionnaires is that it is not possible to clarify some questions or doubts if the respondent does not fully understand the question. Therefore, questions have been designed to be as clear as possible, explaining any fact of potential confusion or ambiguity.

The questionnaires have been designed using the software *Qualtrics*. This software presents an intuitive interface that facilities the design, providing tips for improving the questionnaires and estimates the response time. It also allows to have different versions in several languages, which has facilitated the translation to English. Moreover, an anonymous link is provided to distribute the questionnaire, respecting the respondent's privacy.

Moving to secondary data, different data sources have been consulted for each block defined in the preliminary research. Regarding socio-demographic characteristics of the population, consulting official organisms of the region or country in which the research is being developed is recommended. In the case of Spain, the National Institute of Statistics offers all the data related to sociodemographic measures.

Moving to the number and location of each destination, public information related to health or educational services is usually published in local websites from the administration. However, it is more difficult to obtain rigorous information for private destinations such as food stores or hairdressers. The best option is to have a list of the number of commerce licences by activity type which can be obtained from the corresponding local administration. In case this information is not available, an alternative option could be searching in *Google Maps*, but this method is not 100% reliable. For this research, information about educational centres, medical centres, pharmacies and public sport facilities has been found in the local website of the city (*https://villarrobledo.com/*), while the rest of the information has been provided directly by the local administration. Finally, additional legal information has been consulted in the Official Gazette of Castilla-La Mancha, in which any law approved by the regional government is published.

In order to get a first insight about the population opinion about some destinations, local forums, newspapers and social media were scanned. In particular, two local digital newspapers (*https://villarrobledodiario.com/* and *https://villarrobledonoticias.com/)* have been consulted, in addition to the local government website already mentioned. Also, one Facebook discussing group called "Villarrobledo complains", and some other forums and social networks were scanned. Finally, to find information about past or similar projects, public research websites have been visited and an informal interview with some of the representatives from the local government was made.

3.5 Data Analysis

After collecting all the data from the questionnaires, several preliminary steps have been done in order to ensure that the data is accurate, complete, and suitable for further analysis. As the first questionnaire was more qualitative and explorative, this pre-processing process has not been as important as in the second questionnaire, in which more rigorous information is needed due to its quantitative nature.

Some of the tasks that should be done before analysing the data include: coding the responses, editing the data if any illogical, inconsistent, illegal data, or omissions in the information are detected or transforming the data to simplify further steps (Sekaran & Bougie, 2016). In the case of the second questionnaire, some of the responses had to be discarded because they were not complete, whereas some specific questions were not considered in the analysis as they presented a large number of blank responses. Moreover, the WTP for an increase in annual taxes, was transformed into monthly amounts so that it is comparable with the fees that users and option users stated. These steps will be further detailed in the following chapter.

Once the data is ready for analysis, it has been summarized using tables and graphs. The software used to design the questionnaires, *Qualtrics*, also allows to analyse data and create reports. Moreover, cross tables can be created to obtained results of a specific question by, say, age group.

On the other hand, a software called *Jasp* was used to develop statistically significant test that provide rigor to the conclusions obtained. It also shows descriptive statistics measures such as central tendency measures, distribution plots, or correlation analysis.

3.6 Conclusions

To sum up, the research has been done in a small city located in the centre of Spain. After a preliminary research to better understand the context of this area, an explorative questionnaire was distributed online to obtain a first sight of the citizens' opinion about the importance that they give to have multiple options of the same destination, which factors they value most, or what are the main reasons why they value having several options. The results of this first questionnaire were very useful to narrow the research to just two destination types (kindergartens and primary health centres).

Then, some additional information about these two destinations was gathered to better design the second questionnaire, also distributed online. This questionnaire was design using payment cards, a Contingent Valuation Method whose objective is to elicit monetary values for different hypothetical situations in which the supply of the service varied. Finally, the data obtained from both questionnaires have been analysed using several software such as *Qualtrics* and *Jasp* to obtain meaningful and rigours conclusions.

4 RESEARCH RESULTS

4.1 Introduction

The objective of this chapter is to present the main results obtained from the different research methods. First, a description of the findings from preliminary research, used to better understand the context of the area under study, is provided. Then, the results obtained by the first questionnaire are summarized, providing information to answer the first three sub-research questions. Then, some additional information about the two destinations selected is presented. After that, the main findings of the second questionnaire are described, helping to answer the remaining research questions. Finally, some conclusions are presented.

4.2 Preliminary Research

As previously mentioned in *Chapter 3*, before starting the design of the first questionnaire, a preliminary research has been carried out in order to gain deeper knowledge about the context of the study area. The information gathered has been subdivided into three blocks: i) sociodemographic characteristics of the population; ii) number, location, and characteristics of current facilities; and iii) local forums, news, and social networks analysis

4.2.1 Sociodemographic characteristics of the population

The city of Villarrobledo registered a population of 25,241 inhabitants in 2019. Observing *Figure 4.1,* it can be noted a decreasing trend during the last years. Since 2014, the number of people registered in the city has decreased almost a 5%, mainly due to the reduction of foreign population.

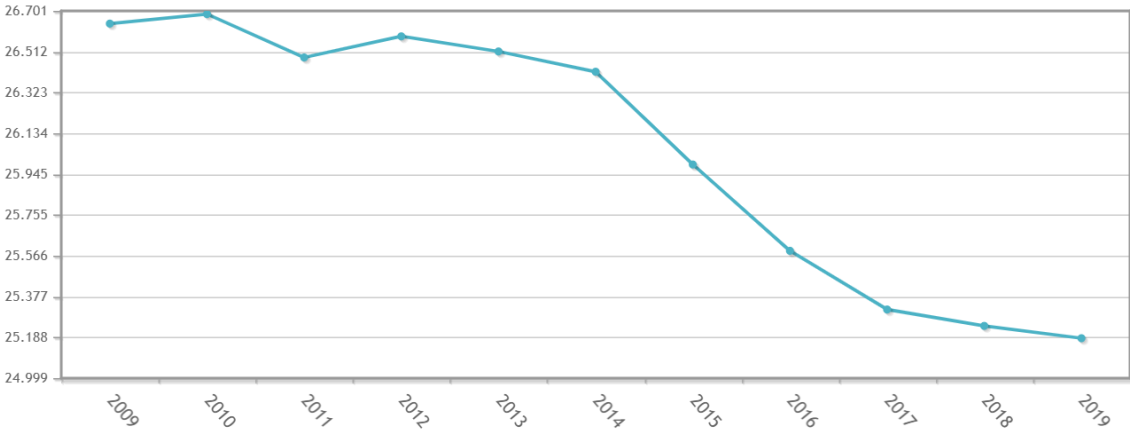

Figure 4.1: Population Evolution. Source: Insituto Nacional de Estatdística

One of the peculiar characteristics of Villarrobledo is its low population density. Although the city is one of the most populated of the region, it is also one of the largest in extension. Therefore, it presents a low population density compared to similar cities of the province, specifically 29,36 inhabitants/km². The next map (*Figure 4.2*) also shows that the population is concentrated in some areas, while some neighbourhoods present a very low density. Moreover, the growth of the city is limited at the south by a railway, and at the east by a highway. The city was recently expanded at the northwest with the creation of a new residential area, which can be easily distinguished in the map of the city.

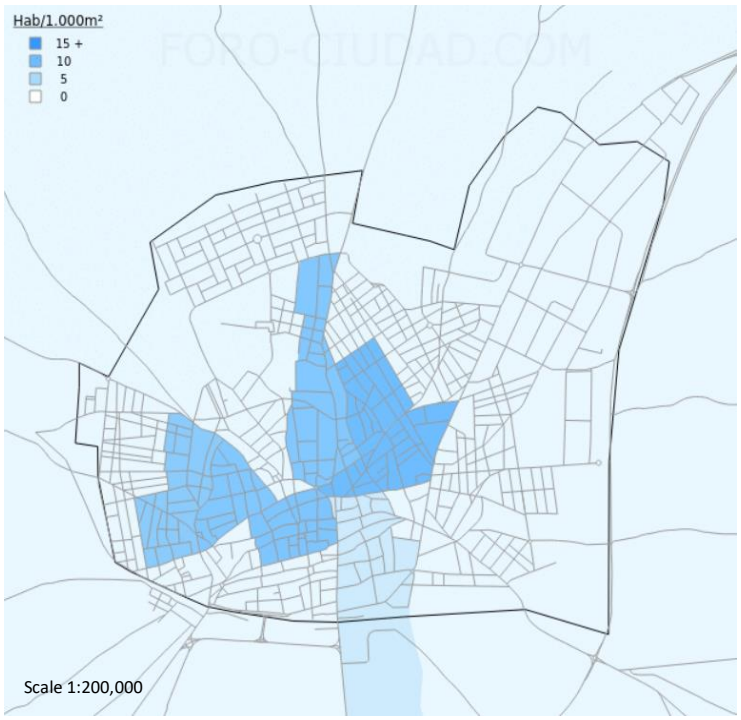

Figure 4.2: Villarrobledo's Population Density. Source: Foro Ciudad

Finally, *Figure 4.3* shows the population pyramid of the city in 2019. The graph shows a trend towards a constrictive shape. Regarding different age groups, the largest proportion of population is concentred between the 20s and the 50s. The proportion of males and females is well equilibrated, although there are a few more females.

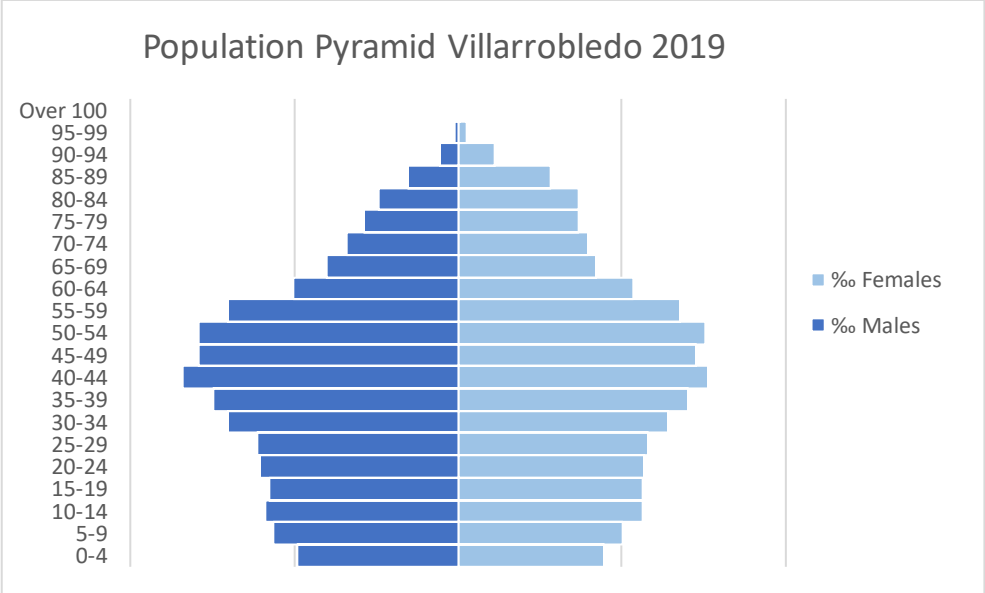

Figure 4.3: Villarrobledo's Population Pyramid 2019. Data source: Instituto Nacional Estadística

4.2.2 Number of facilities, location, and characteristics

Following the classification of the destinations described in *Chapter 3*, a deeper analysis has been carried out. The number of facilities for each destination at the current moment that the research is developed is summarized in *Table 4.1*.

Table 4.1: Number of destinations in 2020

Destination	Facilities in 2020
Food stores	
Supermarkets	7
Butcheries	5
Fruit shops	2
Neighbourhood stores	8
Health	
Hospital	1
Health centres	2
Pharmacies	13
Education	
Kindergartens	7
Primary schools	7
Secondary schools	3
Libraries	2
Sports	
Public sport facilities	6
Gyms	5
Other services	
Hairdressers	20
Clothes shops	20

Then, for each category a map that represents the location of each facility has been created. These maps have provided useful information to identify areas with lower accessibility to a specific type of destination, or to know whether some destinations are concentrated in a specific area or are well distributed instead. It has also been important to understand mobility patterns of the citizens. *Figure 4.4* shows an example of food stores' location. The rest of the maps and the main conclusions obtained can be found in Appendix B.

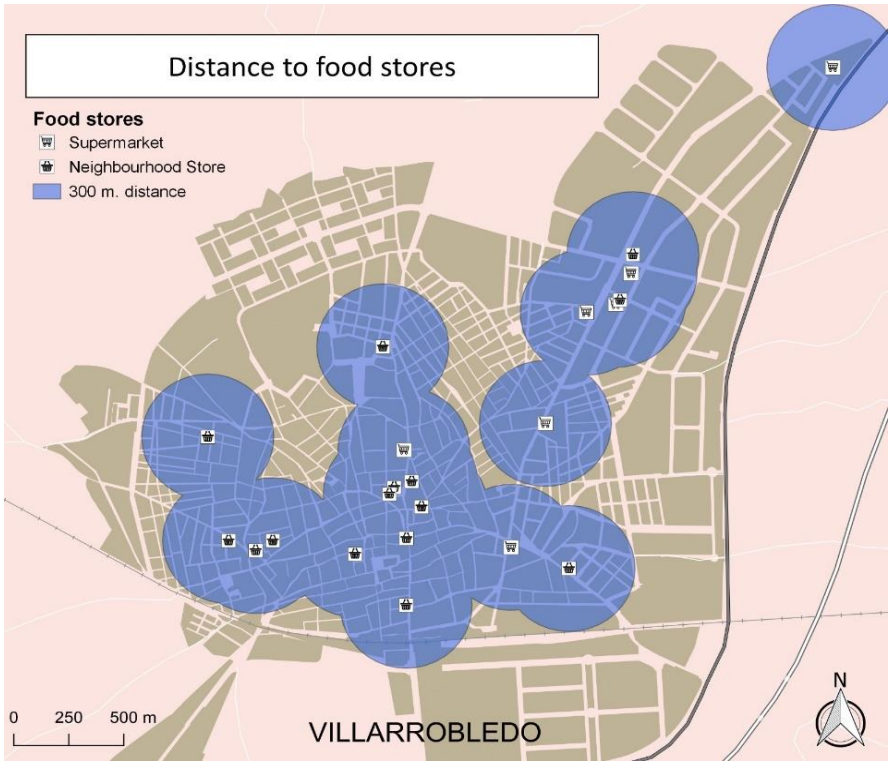

Figure 4.4: Food stores location map

There are some relevant legal restrictions that condition the number of services that a city can offer. This applies mainly to public services. In particular, there can be, a maximum of one *pharmacy* per 1,900 citizens (Ley 2/2015). Therefore, in Villarrobledo, there is no room for an additional pharmacy considering its current population (25,241). Regarding *educational centres*, although there is not a law that restricts the number of primary or secondary schools, the number of students per class is indeed regulated. The selection process for educational centres also conditions the number of options available since the city is divided into two educational regions. Families living or working in the same region than the school they are applying, have priority over the ones that live in the other region (except from secondary schools, in which proximity is irrelevant) (Decreto 1/2017).

Finally, it is also important to mention that all decisions about the opening and closure of public facilities is competence of the local government, sometimes in collaboration with regional organisms.

4.2.3 Local forums, news, social networks analysis

In order to obtain a first opinion about some of the destinations that will be assessed in the questionnaires, some local forums, newspapers and social networks have been scanned. These information sources should be analysed critically, and it should be kept in mind that they do not necessarily represent the opinion of the overall population. Some facts obtained from the analysis which are considered to be relevant for the research are:

- The only supermarket that is in the city centre is going to close in November. The supermarket chain, which has two supermarkets in the city, has announced that they are going to close the one in the city centre and enlarge the other one. There are mixed opinions among the citizens about this topic, as ones argue that it is going to affect people who have no car, and others state that there are enough alternatives in the city centre to do groceries.

- There is a second public health centre whose construction was stopped in 2008 due to the economic crisis, but the building is almost finished. It is a recurrent topic of political debate, some politicians have promised to finish it, but no formal decisions have ever been made. Thera are many complains about the bad management of the local government and some people argue that it was an unnecessary expense for the city.

- There are many complains about library schedules. Although the regular schedule is considered as acceptable, many students complain about the schedule, and even opening days, during specific dates such as Christmas, Easter or Summer.

- There are many complains about the services of the hospital. The number of medical specializations that it offers has decreased since it opened and there are long queues for the remaining ones. During December 2019, more than 5,000 signatures were collected to protest against these issues.

- An informal interview with one of the urban planners from the local government was done to present the topic and ask for additional relevant information. The interviewee pointed out some other topics that citizens have recently demanded. One is the related with opening of the current public medical centre also during the afternoons. Another complain was about kindergarten schedules because, currently, just one of them opens during the afternoons (and it is the furthest one).

- About similar projects, Villarrobledo joined the *Sustainable Cities and Towns Network of Castilla-la Mancha* in 2002, network that aimed to develop and implement the actions of the Local Agenda 21. The city reached the last phase of the program in 2008. It initially elaborated a diagnosis of the situation and then, developed the corresponding action plans which were approved by the local government. In particular, 71 action plans were approved. One of the proposed strategic lines was sustainable urban planning development, but no project is relevant for this research. From 2009, just individual projects related to the urban agenda have been developed, without a common line of action or methodology.

All this information (e.g. knowing the decreasing trend of the number of inhabitants, the low-density population, the number and location of each destination, etc.) has been essential to elaborate the two questionnaires and to interpret some of the results of that questionnaires.

4.3 First Questionnaire

The first exploratory questionnaire was distributed by an anonymous link that was sent through different channels. A total of 269 people opened the link, although just 154 of them finished the survey with valid responses. From the incomplete responses, 70% did not answer any question or just the first one, and 24% leave the questionnaire during the first questions. For the following analysis, just completed and valid responses have been used, except for the first general question which was answered by 206 people.

4.3.1 Sociodemographic characteristics of the sample

The following figures show the sociodemographic characteristics of the respondents who successfully finished the questionnaire.

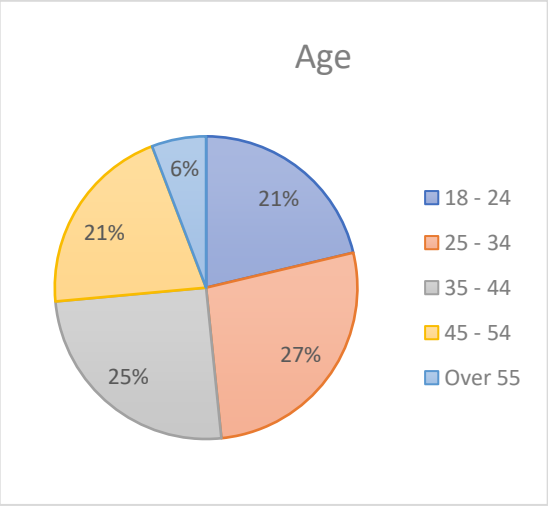

Figure 4.6: Age distribution of the sample

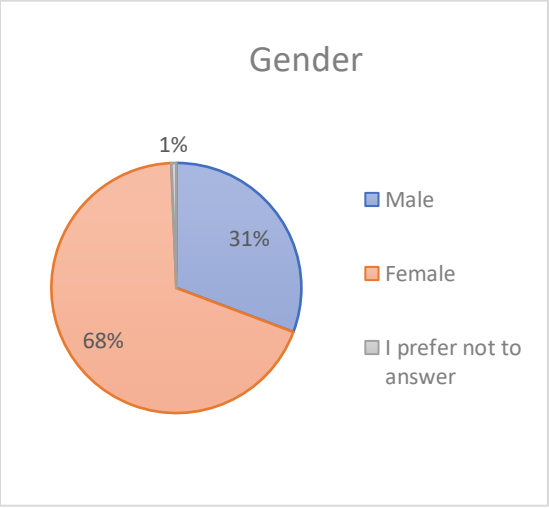

Figure 4.5: Gender distribution of the sample (1)

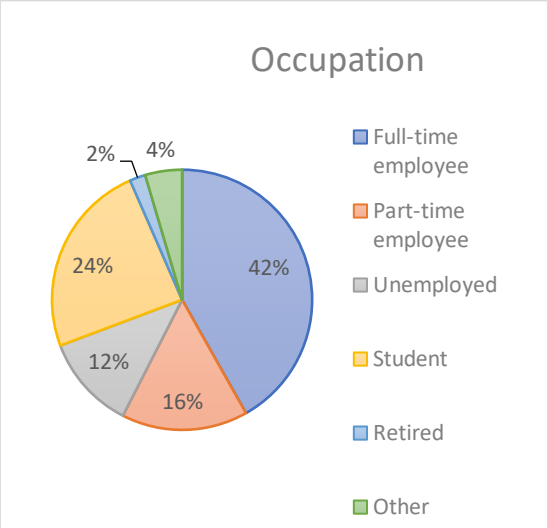

Figure 4.8: Occupation distribution of the sample (1)

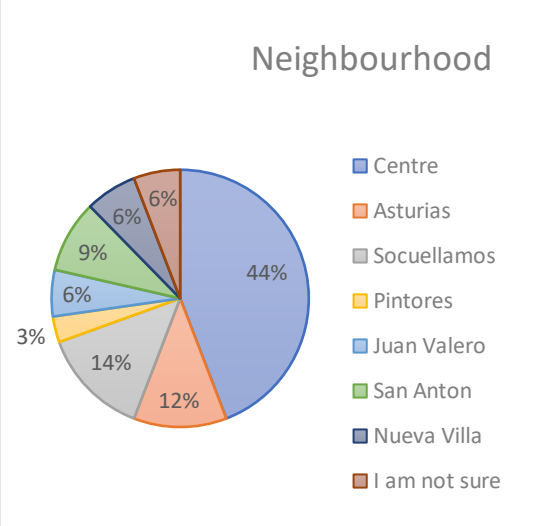

Figure 4.7: Neighbourhood distribution of the sample (1)

In order to test the representativeness of the sample with respect to the population, a Chi-squared good-of-fitness test has been done. For this test, the characteristics of the sample have been compared with real data from the population under study. The target population have been defined as the citizens of Villarrobledo aged between 18 and 65 years old. People below 18 have not been considered because they do not make use of many services asked and their choices usually depend on their parents. On the other hand, people above 65 are excluded due to the difficulty of reaching them by the online distribution of the questionnaire.

After collecting the data of this target population and performing the Chi-squared test, it can be concluded that age and gender variables do not fairly represent the population. The sample contains a higher proportion of young people and lower of people over 55 and a higher proportion of females than the expected. On the other hand, occupation distribution does fairly represent the population distribution. For this test, full-time and part-time workers could not have been differentiated as just data about employed people was available. Finally, although there is no data available about the population in each neighbourhood, looking at the density map and considering the size of each neighbourhood, it can be concluded that it is an honest representation of the reality. The details from this test are presented in Appendix C. The representativeness of the sample and the implications it could have on the findings of the research will be further discussed in *Chapter 5.*

4.3.2 Results

In order to extract some conclusions from the questionnaire, all valid recorded responses have been analysed. A summary of the main findings from this exploratory questionnaire is presented in this section (for a full report see Appendix D). Answers have been transformed into graphs and tables to facilitate the analysis. Then, the criteria applied for selecting the destinations that will be included in the second questionnaire are described.

Summary

The first question of this questionnaire was related with the importance that respondents give to the fact of having multiple options or alternatives of a specific service/destination. The following graph shows the distribution of responses for each destination according to an ordinal scale.

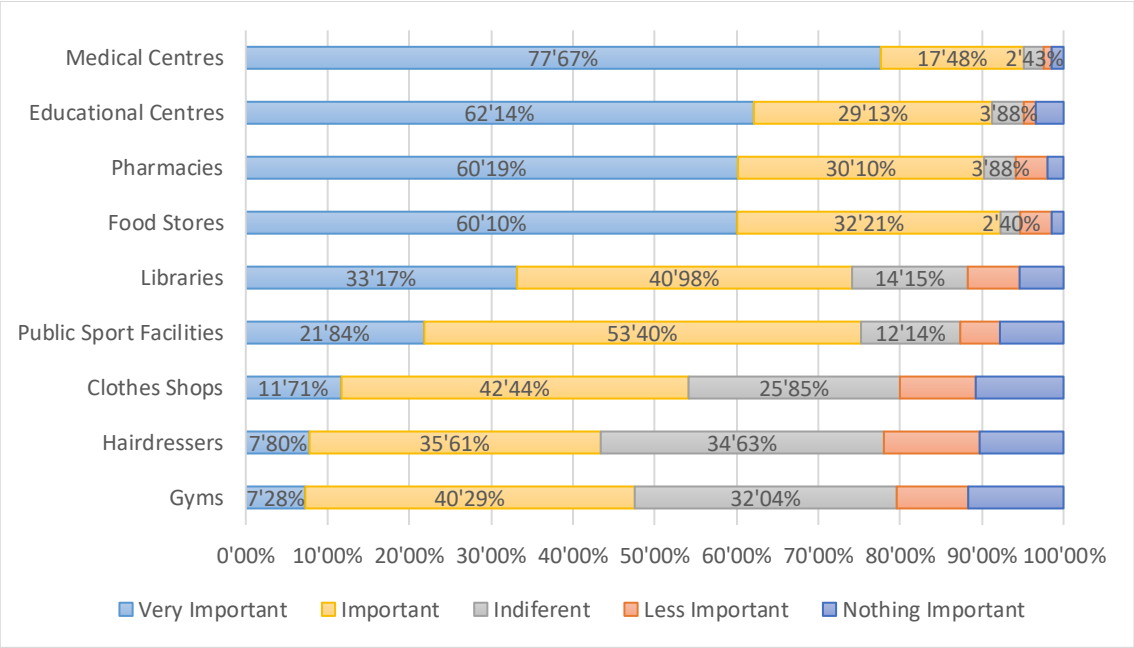

Figure 4.9: Multiple Options Importance Distribution by destination

It can be observed that almost 80% of the respondents consider that is very important for them to have multiple options of medical centres. Educational centres, pharmacies and food stores are the following options judged to be most important, with a very similar mean and distribution. At first sight, it seems that there is a substantial difference between these four destinations and the rest one. In order to test whether this difference Is significant, a Mann-Whitney U test has been carried out. This test assesses whether there are significant differences between two independent groups, according to an ordinal scale. In this case, destinations have been grouped in two categories, basic and secondary services/destinations. Basic destinations are considered those that provide the minimal services for an individual well-being, including educational centres, medical centres, pharmacies and food stores. The rest of the destinations can be treated as secondary services. The results of the Mann-Whitney U test are shown in the following table:

Table 4.2: Differences between basic and secondary services, Mann-Whitney U test

	W	p	Hodges-Lehmann Estimate	Rank-Biserial Correlation
Importance	379477.000	< .001	1.000	0.548

Note. For the Mann-Whitney test, effect size is given by the rank biserial correlation.
Note. For all tests, the alternative hypothesis specifies that group *Basic* is greater than group *Secondary*
Note. Mann-Whitney U test.

From these results, it can be concluded that there is a significant difference between the groups because the p-value is lower than 0.05 (confidence interval of 95%). Specifically, it can be affirmed that basic services are considered more important than secondary ones, with a median difference of 1 in a scale from 1 (nothing important) to 5 (very important).

As it was explained in the Research Methodology chapter, the questionnaire was divided into five blocks of destination groups. In the second question, respondents were asked to choose, at least, two of these five blocks to give their opinion. Once again, basic destinations were the ones most chosen among the surveyed. The block about health services was selected by more than 75% followed by educational centres and food stores. The 'Other services' block, which included hairdressers and clothes shops, was just chosen by 28% of the respondents.

Although it was explained at the beginning of the questionnaire, the concept of multiple options could have not been fully understood by respondents. In this way, they may have answered according to the importance they give to the service itself, but not to the fact of having multiple options of that service. In order to avoid this possible ambiguity, additional questions were asked in each block to check whether respondents care about having multiple options of a specific destination and which were their main reasons.

The reasons provided can be classified into motives related to use, option, and non-use values. In this context, use values can be derived from the fact of using multiple alternatives of the same destination, or due to the appreciation of having several options in order to be able to choose the one that best suits respondents' personal preferences. Reasons related to option values include having alternatives in case the place the individual usually goes is closed, increases the price or the wanted product is not available. On the other hand, non-use value reasons include ensuring that all the citizens have one destination close to their homes, avoiding saturations, or concerns about people who have no other options. There are also people that do not value having multiple options because they just care about the one(s) they go, although they would be affected by any change in their preferred place. Finally, some respondents are just indifferent, or they simply do not make use of the service. When asking about the reasons, individual motives were separated from collective ones to make it easier for the respondent to answer. The next table shows the percentages for positive responses (people who appreciate having multiple options) and negative ones, from an individual point of view (use and option values) and from a collective point of view (non-use values).

Table 4.3: Use, option, and non-use values appreciation by destination type

	Use and option values		**Non-use values**	
Destination	**% of positive responses**	**% of negative responses**	**% of positive responses**	**% of negative responses**
Basic services				
Food stores	91.74%	8.26%	93.64%	6.36%
Educational centres	89.06%	10.94%	95.95%	4.05%
Pharmacies	91.08%	8.92%	95.13%	4.87%
Secondary services				
Libraries	70.00%	30.00%	85.19%	14.81%
Public Sport Facilities	87.01%	12.99%	93.02%	6.98%
Gyms	77.66%	22.34%	88.33%	11.67%
Hairdressers	66.04%	33.96%	68.52%	31.48%
Clothes shops	70.97%	29.03%	84.04%	15.96%

These results are coherent with the ones from the first question. Basic destinations present higher percentages of positive responses than secondary services, for both, the individual and the collective perspective. It can also be concluded that percentages of positive responses for non-use values are slightly higher than the ones from use and option values. One possible explanation is that almost all individuals care about the well-being of other citizens. However, this does not necessarily translate into a willingness-to-pay since it is very different to state that one is concern about other people, than be willing to pay for a service one does not use. This issue is addressed in the second questionnaire.

Medical services are an exceptional case because, in this city, there is just one hospital and one public medical centre. Therefore, it would not make any sense to ask whether people value having multiple options. However, in the first question it was the category to which higher importance was given when valuing having multiple alternatives. In this case, respondents may refer to the fact of having more doctors, reducing waiting queues, or increasing the number of specializations in the hospital, which has been reduced in the last years.

Another relevant question inquired in each block was about respondents' appreciation of the current number of destinations. The next table shows the results for each destination:

Table 4.4: Appreciation of current number of destinations

	Q: Do you think the current number of each destination type is adequate in your city?			
Destination	**Yes**	**Too many**	**Not enough**	**Indifferent**
Food Stores	79.52%	4.82%	9.64%	6.02%
Kindergartens	58.82%	2.94%	21.57%	16.67%
Primary schools	81.37%	0.00%	11.76%	6.86%
Secondary schools	69.90%	0.00%	23.30%	6.80%
Libraries	62.14%	1.94%	32.04%	3.88%
Medical Centres	38.33%	1.67%	57.50%	2.50%
Hospital services	16.67%	0.00%	79.17%	4.17%
Pharmacies	80.83%	2.50%	10.83%	5.83%
Public Sport Facilities	70.00%	13.33%	11.67%	5.00%
Gyms	70.00%	15.00%	5.00%	10.00%
Hairdressers	52.27%	22.73%	4.55%	20.45%
Clothes Shops	27.27%	6.82%	56.82%	9.09%

In this case, there is not a clear pattern that differentiates basic and secondary services. Regarding basic services, it can be observed that people clearly believe that more hospital services are needed, but they are well satisfied with the number of food stores, primary schools or pharmacies. On the other hand, about secondary services, respondents think that there are not enough clothe shops in the city, while it is considered that there are many hairdressers. This information has been very useful for the second questionnaire. It would make no sense to ask how much individuals would be willing to pay for an additional hairdresser when just 4% of the people think that there are not enough.

Regarding which factors are most appreciated for each destination type, the following table shows the three most valued attributes when choosing a specific destination:

Table 4.5: Most valued factors by destination type

	Factors					
Destination	**Proximity**	**Price**	**Product's quality**	**Service**	**Variety**	**Schedule**
Basic Services						
Food Stores	✓	✓	✓			
Pharmacies	✓			✓		✓
Educational centres	✓	✓		✓		
Secondary Services						
Gyms		✓			✓	✓
Hairdressers		✓	✓	✓		
Clothes shops		✓			✓	✓

Some conclusions can be extracted from this table. For example, it can be observed that price is a factor that is considered important in all destinations, except for pharmacies. For educational centres this price attribute means that people prefer public centres over private ones. Moreover, proximity is more valued in basic destinations, while for secondary services variety is preferred.

Selection of destinations

After analysing the main findings of the exploratory questionnaire and the relevant facts described in the preliminary research, some destinations were chosen to obtain estimates about the willingness to pay in the second questionnaire. The criteria that have been applied to select the final destinations are outlined below.

First, just basic services were contemplated as potential candidates because the results show that people consider more important to have multiple alternatives of these destinations. Looking at the importance and the appreciation of the current number of services, health services seem the best destination to be further analysed. Almost 80% of the respondents believe that more specialized services are needed, while more than 55% state that current primary health services are not enough. With these results, it would make more sense to further analyse hospital services than primary health ones. However, due to the current situation in which the research is being developed (COVID-19 crisis), people may be biased about hospital services, and results would not represent a normalized situation. Regarding pharmacies, they have been discarded as no additional pharmacy can be open due to legal restrictions. Therefore, medical centres were selected to be included in the following questionnaire.

When considering food stores, they seemed good candidates at the beginning, particularly supermarkets. However, not all supermarkets are perceived in the same way as each of them has a different competitive advantage. Some are more attractive due to low prices and sales, others due to their greater variety of products, while some have a strategic location. This fact increased the difficulty to include this destination type in a contingent valuation questionnaire, in which the maximum WTP to have an additional option is asked, and price is the second most valued factor in food stores. Therefore, just public destinations, which are supposedly to be all the same in terms of prices and service, were included. A further discussion about this topic will be done in *Chapter 5*.

Finally, regarding educational centres some differences can be observed among the different educational levels. For primary schools, more than 80% of the respondents think that the current number is adequate. However, for both secondary schools and kindergartens, there is at least a 20% who believe that more options are needed. Considering the most possible realistic scenario, kindergartens are the best destination to include in a contingent valuation questionnaire. While the number of secondary schools has remained constant for more than 10 years, the number of kindergartens has varied considerably in the las 4 years. Moreover, from the 7 kindergartens that city currently presents, just 5 are public with one of them opening only in the afternoons. The difficulty of accessing a public kindergarten and complaints about proximity, have been facts stressed in the exploratory questionnaire, making kindergartens an interesting destination to be further analysed in the following phase.

4.4 Additional information for the second questionnaire

As has been previously mentioned, one of the key points to obtain meaningful results in a contingent valuation questionnaire is to formulate realistic scenarios. Therefore, information about current perceptions of the destination, specific attributes that influence individual's decisions, the adequate payment mechanisms, etc. must be described in detail. Most of this data can be obtained from the first questionnaire, although some additional information has been gathered from different sources.

4.4.1 Primary health centres

Medical centres offer primary health services to the citizens. In Villarrobledo, there is just one public medical centre which opens form 8 a.m. to 15 p.m. It also presents an emergency section which is open 24 hours. Moreover, there is a private policlinic that offers both primary and specialised health services, and several private doctors who one can visit if one has a private medical insurance.

One of the relevant facts founded in the preliminary research was the project initiated in 2007 to build a second public primary health centre in the city. However, the work was stopped in 2008 due to the financial crisis. This project has been object of political debate in the last years. While some argue that it was a bad decision since it was not necessary and lots of money was wasted, others support the idea of finish it to, at least, recover part of the investment. There is also some controversy among the citizens. Therefore, a question about this topic was included in the first questionnaire. The results are that most of the people want it to be finished (94%). Some of them in order to have an additional medical centre (62%), while others think that it should have other use (32%). Two respondents specifically indicated that the building should be finished to have another nursing home. Other two, stated that it should be finished only when there are enough funds and after an exhaustive study about citizen's needs. The following map shows the location of both the public and the private health centre, in addition to the unfished public health centre.

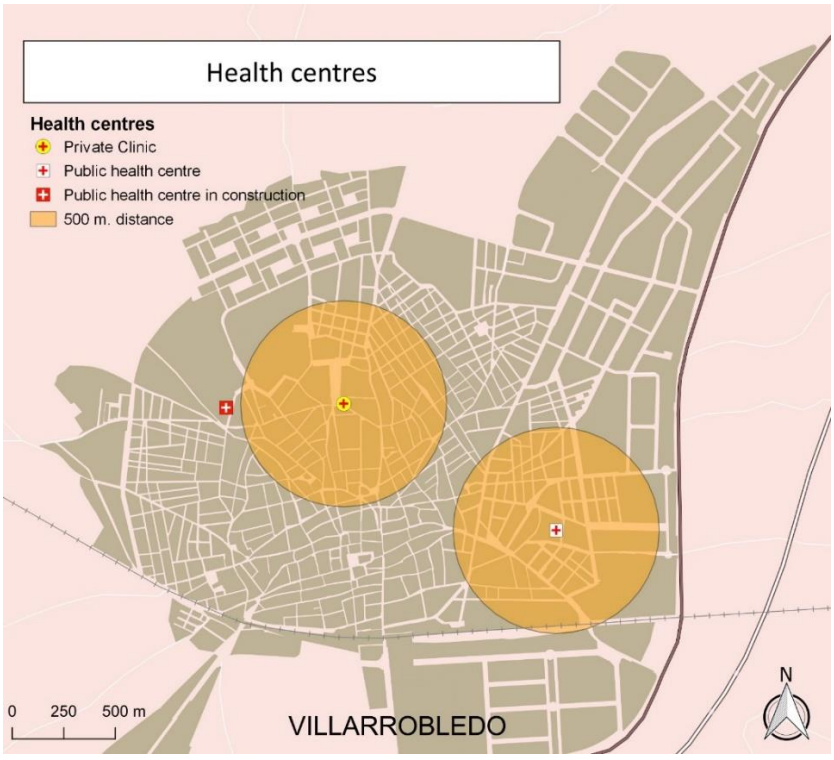

Figure 4.10: Primary Health centres map

It is also relevant to recall that 57.5% of the first questionnaire respondents state that more primary health services are needed.

4.4.2 Kindergartens

As already mentioned, Villarrobledo has 7 different kindergartens. Five of them are public, while two are private. From the public ones, one only opens during the afternoons, so that just 4 can be considered as regular public kindergartens. The main differences between public and private ones are the price and the schedule. According to the first questionnaire, the third factor most appreciated for this destination is that the service is public, mainly because it is cheaper. On the other hand, private kindergartens offer a more flexible schedule.

With respect to the perceptions of the current number of kindergartens, 59% of the surveyed think that there are enough, while 21.5% think that more are needed. Just the 3% believe that there are too many, and the rest are indifferent. From the people who believe that more kindergartens are needed, 45% live in the city centre, 18% in Socuellamos neighbourhood, and 13% in the new neighbourhood, which are the areas with lower access to public kindergartens as the map of F*igure 4.11* shows. The map also indicates the current number of students per centre. It can be observed the considerable disproportion between centres.

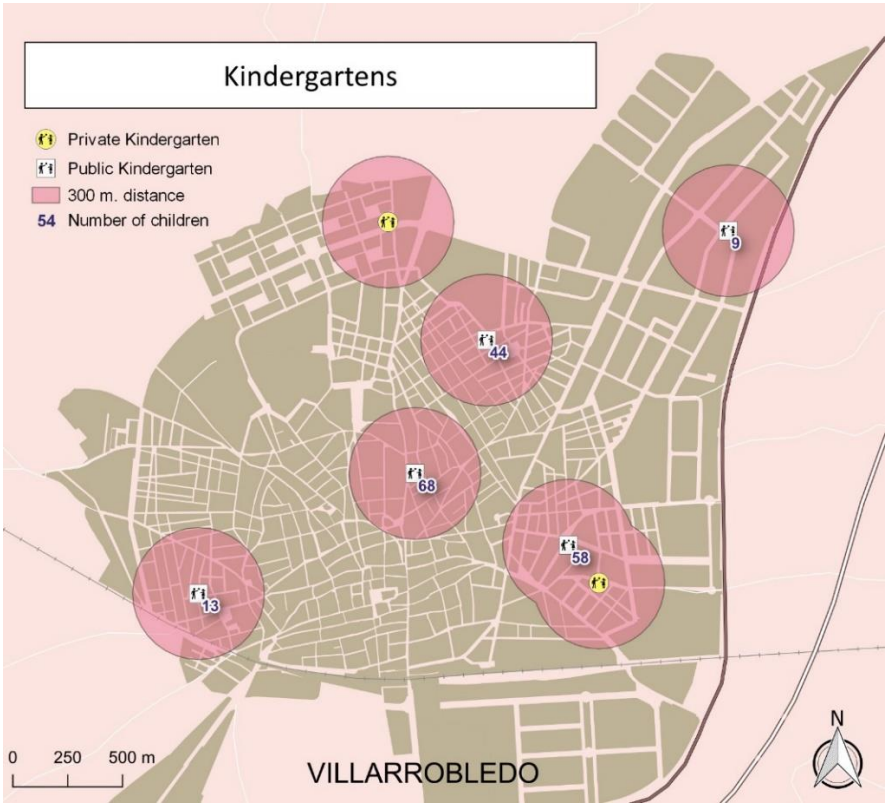

Figure 4.11: Kindergartens' location

After gathering more information about public kindergartens, it has been found that the three ones with highest number of children are already saturated and cannot admit more children. Regarding the remaining two, they could not neither admit more children with the current number of teachers. However, they have physical capacity for more, that is, there are empty classes. Therefore, if the demand for these services increases, currently there is just a real option to expand the service (the one with 13 students) because the other one just opens in the afternoons. On the other hand, the low number of children in these two kindergartens makes one wonder if it is worthy to maintain them or what would happen if the demand decreases.

It can be expected a reduction in the demand due to the decreasing trend in the population. However, last years' data show that there is not a correlation between the population and the number of children enrolled in public kindergartens (probably because of private competition).

Finally, regarding kindergarten prices, there is a clear distinction between public and private as the payment mechanism differs for each of them. For public ones, fixed monthly fees are established by the local government. These fees, shown in *Table 4.6*, rise as family's income increases. On the other hand, private fees are established per hour of service. Approximately, for a morning service the fee is 150-180€.

Table 4.6: Monthly fees for public kindergarten. Source: (Ordenanza número 31, 2017)

Total family income/number of family members (€/year)	€/month Mornings (8:00-15:00)	€/month Whole day	€/month Afternoons (16:00-20:00)
<=3,600	24	40	16
3,601-4,200	440	56	27
4,201-5,200	64	80	43
5,201-8,500	80	96	54
8,501-12,000	96	112	64
>12,000	122	128	82

Finally, it is also important to mention that public kindergartens do not cover all their costs with the revenue obtained from the monthly fees and, therefore, also municipal taxes are used to fund this service.

4.5 Second Questionnaire

In the following section the results from the contingent valuation questionnaire are described and interpreted. This questionnaire aimed to provide information to answer the fourth sub-research question related to know whether WTP values vary among different demographic groups, and together with previous results, answer the main research question. First, the data pre-processing process, which was carried out to extract valid answers and get the data ready for the analysis, is described. After that, the demographic data of the respondents is shown. Then, the results for both destinations, kindergartens and primary health centres, are summarized.

4.5.1 Data pre-processing

Unlike the first questionnaire, a deeper data pre-processing task had to be made before analysing the data gathered in this contingent questionnaire. From the 254 questionnaires finished, some of them were discarded due to a high number of blank questions. Moreover, when the elicit questions was left in blank, that questionnaire was also deleted. There were also some cases in which the questionnaire was invalid for the kindergarten part, but valid for the health centres' one. In other cases, when there were blank responses is secondary questions such as occupation, use of private services, net income or neighbourhood, they were filled with the alternative answer (e.g. other, I prefer not to answer, I am not sure…).

Furthermore, students with no income have not been considered in the analysis. This is because they do not currently pay any tax or fee asked in the questionnaire, which makes more difficult for them to answer these questions, leading to a high number of outliers. Regarding the elicit question for kindergartens, there were two different payment mechanisms depending whether the respondent was classified as user, option user or non-user. Therefore, in order to obtain comparable results, the values showed to non-users (which were annual taxes), were

transformed into monthly values diving them by 8.5 (number of fees that users pay). Another transformation that has been made with this data is related with the highest possible options, which were >20 € in the case of monthly fees, and >150 € for annual taxes. Although there was a text entry for this option, no one filled it with the real value they are willing to pay. Therefore, in order to obtain a specific value, the increasing pattern of previous values was followed, and the next level was considered, that is, 24€ for monthly fees and 180€ for annual taxes.

Finally, respondents who stated that they are not willing to pay anything for the change being valued, have been classified into protest and non-protest respondents according to the reasons they gave in the follow-up question and applying the criteria described in *Chapter 3*. Respondents who are reluctant to pay, but are classified as non-protest, were assigned a true zero WTP value, whereas protest respondents were not included in the analysis. Moreover, some people stated another reason in the open option, and they were classified according to the similarity to other reasons.

After these data pre-processing steps, a total of 197 questionnaires are left for kindergarten services, whereas 203 can be used for the analysis of primary health centres, including both protest and non-protest respondents. These number decrease in each of the hypothetical scenarios.

4.5.2 Sociodemographic characteristics of the sample

The following figures show the sociodemographic characteristics of the 197 respondents who successfully finished the whole questionnaire, including both protest and non-protest respondents.

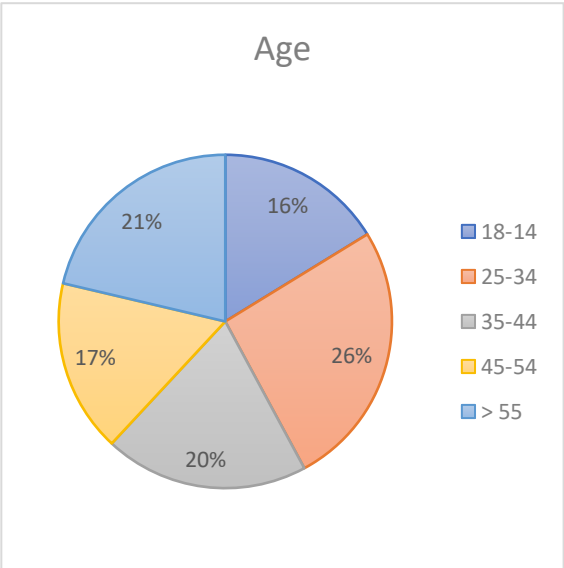

Figure 4.13: Age distribution of the sample (2)

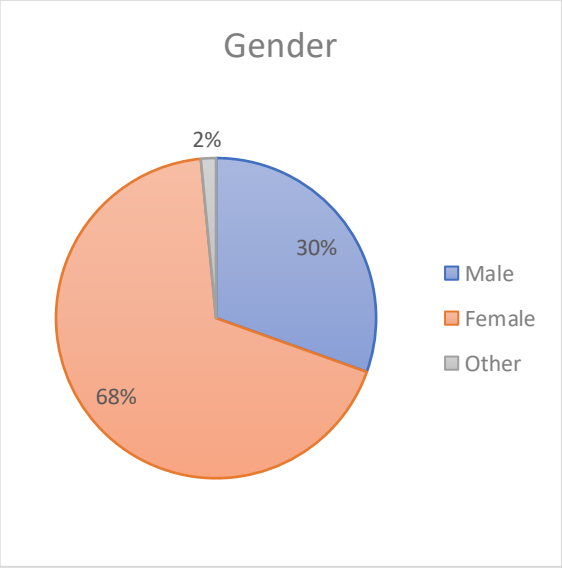

Figure 4.12: Gender distribution of the sample (2)

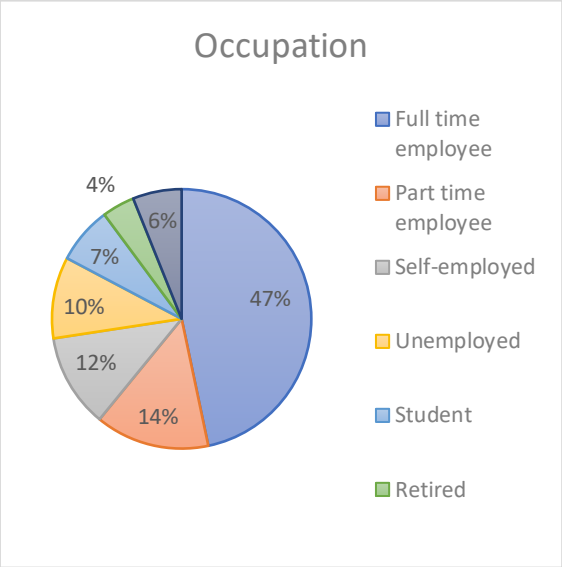

Figure 4.14: Occupation distribution of the sample (2)

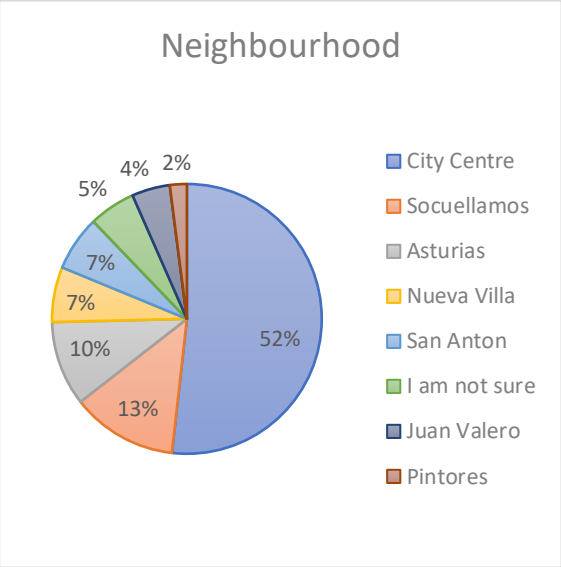

Figure 4.15: Neighbourhood distribution of the sample (2)

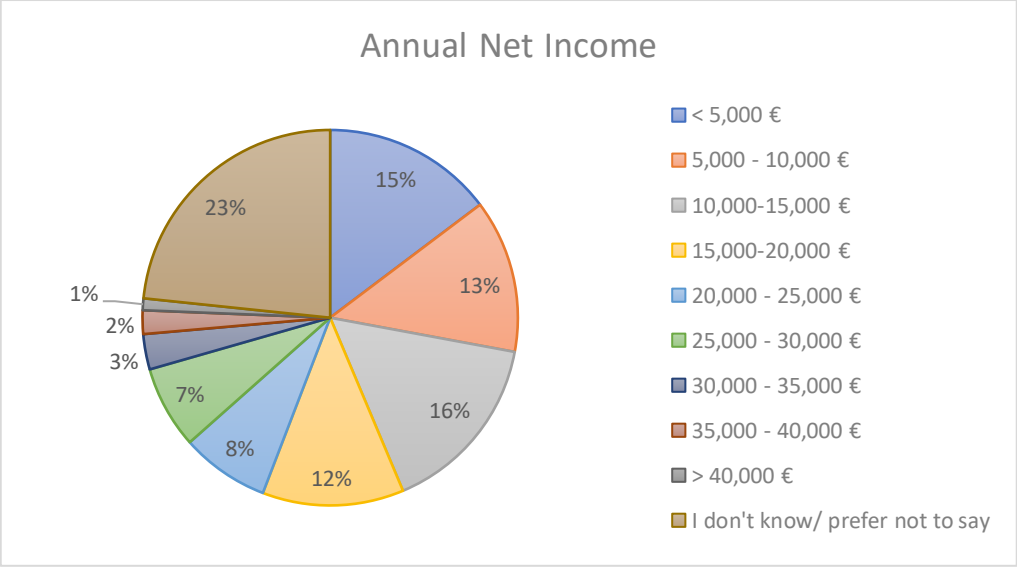

Figure 4.16: Annual Net Income distribution

In the same way than in the first questionnaire, Chi-squared goodness-of-fit tests have been carried out in order to assess the representativeness of the sample. In this case, age groups are better distributed. However, results show that there is a significant difference between the proportions of the sample and the population ones. Regarding gender distributions, same results than the first questionnaire are obtained, being the proportion of females much higher than the expected from the population. On the other hand, the distribution of employed and unemployed respondents is statistically similar to the population distribution. Results about the neighbourhood and annual net income cannot be tested because the population data is not available. Nevertheless, they present reasonable distributions. All these tests can be found in Appendix E and the implications they have on the findings of the project would be discussed in *Chapter 5*.

4.5.3 Results

In this section the main findings for both destinations are summarized. It is important to mention how WTP values are measured to answer the main research question. There is some controversy in the literature about whether mean or median WTP should be considered. In this case, median values are preferred over mean ones. This is because the distribution of WTP is skewed and just a small number of respondents are willing to pay very large values, whereas a large number of respondents have chosen very small (and even zero) values (OECD, 2018). In this situation, mean WTP is overestimated and median WTP is a better predictor of what the majority of people would actually be willing to pay. Nevertheless, mean values are also reported.

Kindergartens

For this first destination, two different hypothetical situations were presented. In the first one, the demand for public kindergartens was supposed to increase, whereas in the second one, the demand was supposed to maintain or slightly decrease.

For the first hypothetical scenario, in which services had to be expanded, respondents were asked whether they prefer to take advantage of current facilities by expanding the current number of classes and schedule, or whether they prefer that a new kindergarten that better adapts to people's preferences is created. However, this question has been discarded due to the high percentage of blank responses (almost 25%). The main reason for this high number of blank responses probably is due to the bad layout of the questionnaire, as this question was placed between two images and some respondents may have not seen it. Therefore, the analysis has been done independently on which option has been chosen. Nevertheless, for the people that answer the question, 70% prefer the option of taking advantage of current facilities.

Table 4.10 shows the mean and median willingness-to-pay values in euros for expanding the service if demand increases (WTP1), and for keeping current services if the demand holds or slightly decreases (WTP2). Missing answers correspond to protest respondents for each scenario, which represent approximately the 30% of the surveyed. This percentage is considerably high compared to the average, which is 18% (Frey & Pirscher, 2019), so that they have not been considered in the analysis. This substantial number of protest answers may be a strong indicator of certain moral or political attitudes when valuing the service, which will be discussed later. It can be observed that, on average, people are willing to pay 1.4 € more for the first option than for the second one, although if the mean value is considered this difference goes up to 4 €.

Table 4.7: WTP Central tendency values for kindergartens

	WTP1 (€/month)	**WTP2 (€/month)**
Valid	139	129
Missing	58	68
Mean	10.83	9.4
Median	12	8
Std. Deviation	7.65	7.13
Minimum	0	0
Maximum	24	24

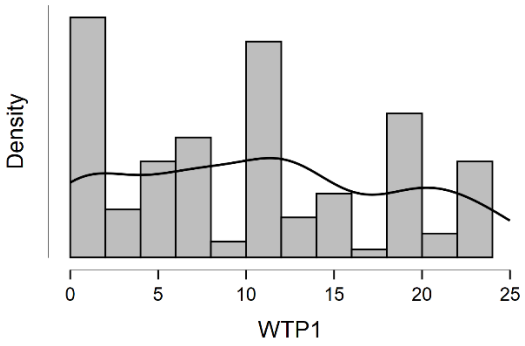

Figure 4.17: WTP Distribution plot for the first scenario

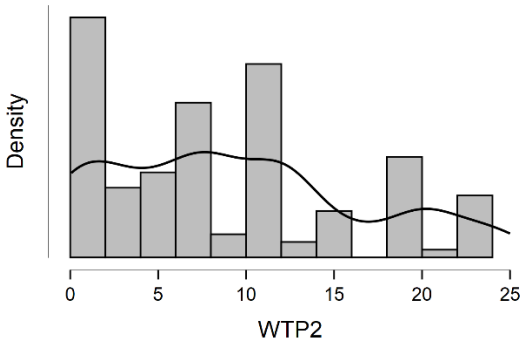

Figure 4.18: WTP Distribution plot for the second scenario

A possible drawback of the questionnaire design is that people answer the same values in both scenarios. Therefore, a correlation analysis has been done to test whether there is a relationship between these two answers. When protest bids from both scenarios are discarded, a Pearson's R value of 0.759 is obtained, which means that there is a moderate-strong positive relationship between the variables. The following figure shows the scatter plot for these variables, observing the positive correlation between the two answers.

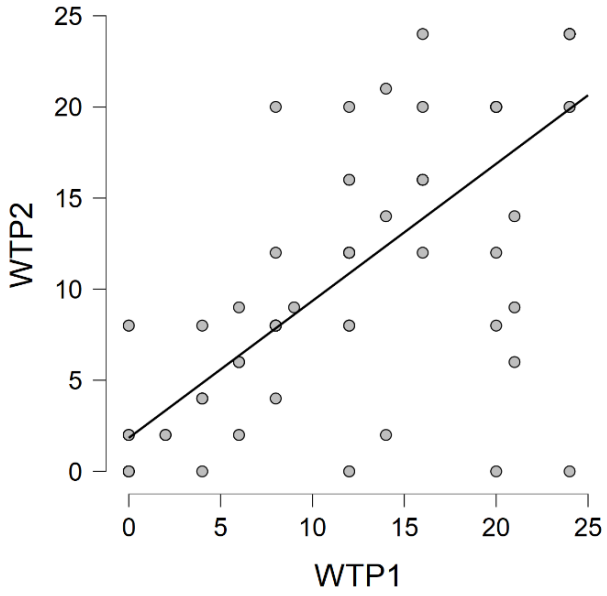

Figure 4.19: Scatter plot for the two scenarios of kindergartens

Applying the criteria explained in the previous chapter, respondents have been classified into three categories: users, option users, and non-users. An analysis to compare WTP of these different groups has been done. The following table summarizes the main results, showing the number of respondents and protest answers in each group and central tendency values for both scenarios.

Table 4.8: WTP central tendency values by user type for both kindergarten scenarios

	WTP1 (€/month)			WTP2 (€/month)		
	Option user	**User**	**Non-user**	**Option user**	**User**	**Non-user**
Valid	39	59	41	41	52	36
Missing	14	13	31	12	20	36
Mean	13.95	11.86	6.37	11.81	10.77	4.67
Median	12	12	6	12	12	2
Std. Deviation	6.15	8.07	6.32	7.32	6.98	4.60
Minimum	0	0	0	0	0	0
Maximum	24	24	21	24	24	21

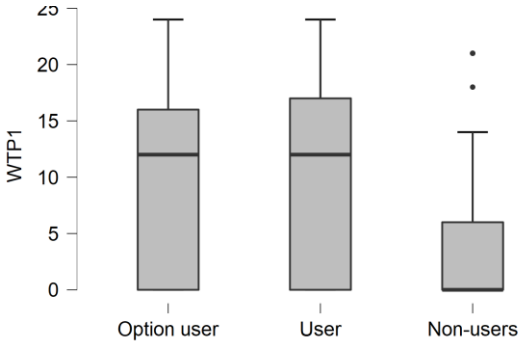

Figure 4.20: Boxplot by user type (scenario 1)

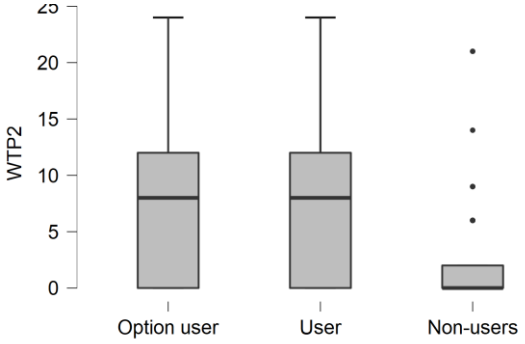

Figure 4.21: Boxplot by user type (scenario 2)

As the previous table and box plots display, mean and median values of option users and users are considerable higher than those of non-users. That is, users and options users are willing to pay more than non-users in order to expand or maintain kindergartens services, which is logic. Moreover, for both scenarios, mean option users' values are higher than user's ones. One possible explanation could be that many of the respondents from the user group are past users who used the service years ago, so that they may perceive that the change would not benefit them now. It can also be observed that, for all groups, mean and median values are lower in the second scenario. Finally, the table shows that protest respondents are mainly non-users, probably because they perceive that is not fair that they have to pay more for a service they do not use.

Both the results from the table and the graphs show an apparent substantial difference between users and option users with respect to non-users. In order to test whether this difference is statistically significant or not, an ANOVA test was done. This test compares the mean of 3 or more independent groups. The results show that there is a significant difference between the three groups, but the assumptions that should be met so that this test is reliable are violated. In particular, the Q-Q plot revealed that the dependent variable (i.e. the WTP) do not follow a normal distribution. Therefore, an alternative non-parametric test called Kruskal-Wallis was done, whose result was that there is a significant difference. However, the test just specifies whether there is a significant difference between the groups, but not which groups are different. In order to gain deeper knowledge, the Dunn pot hoc test was carried out, reaffirming the information provided by the graphs: there is no significant difference between users and options users, but there is between these two groups and non-users. The following tables summarize the results of the tests just described for the first scenario.

Table 4.9: ANOVA results for kindergarten groups first scenario

Cases	Sum of Squares	df	Mean Square	F	p
User group	1259.531	2	629.766	12.576	< .001
Residuals	6810.325	136	50.076		

Note. Type III Sum of Squares

Table 4.10: Kruskal-Wallis Test

Factor	Statistic	df	p
User Group	20.908	2	< .001

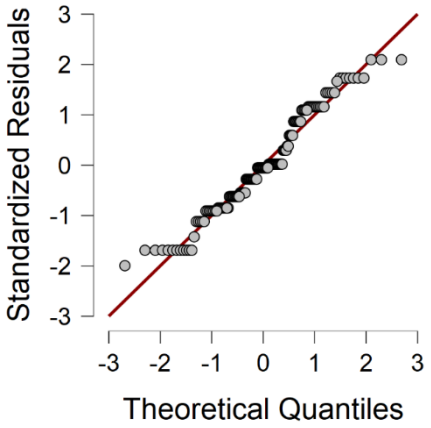

Figure 4.22: Q-Q Plot (WTP1-Groups)

Table 4.11: Dunn's Post Hoc Comparisons – User group

Comparison	z	W_i	W_j	p	p_{bonf}	p_{holm}
Option user - User	1.429	86.615	74.831	0.076	0.229	0.076
Option user - Non-user	4.406	86.615	47.244	< .001	< .001	< .001
User - Non-user	3.396	74.831	47.244	< .001	0.001	< .001

One of the objectives of this questionnaire was to provide information to answer the fourth sub-research question, which aimed to know whether the WTP values for different demographic groups vary or not. In the questionnaire respondents gave information about their age, gender, occupation, income or neighbourhood. To answer this sub research question, a deeper analysis has been carried out to test whether there are statistically significant differences between different demographic groups. The same procedure than the explained previously for testing whether there was a significant difference between user types has been done for each demographic variable.

Table 4.15 shows the mean and median WTP values for both scenarios according to each age group. Again, missing values correspond to protest answers. Apparently, there is no relationship between age groups and WTP values. After performing all the tests for both scenarios, no significant difference was obtained for any test. That means that there is no statistical relationship between age and WTP values. For the rest of the variables (gender, occupation, income, and neighbourhood), no significant difference was neither found. All the results from these tests can be found in the Appendix F.

Table 4.12: Mean and median WTP values by age groups for both scenarios

	WTP1 (€/month)					WTP2 (€/month)				
Age group	18-24	25-34	35-44	45-54	> 55	18-24	25-34	35-44	45-54	> 55
Valid	22	35	28	23	31	22	37	24	18	28
Missing	10	16	11	10	11	10	14	15	15	14
Mean	10.45	11.48	9.25	9.91	12.45	9.36	9.37	7.2	9.05	11.53
Median	12	12	8	12	12	8	8	8	8	12
Std. Deviation	6.26	7.95	8.07	7.75	7.79	8.29	7.3	5.6	6.76	7.19
Minimum	0	0	0	0	0	0	0	0	0	0
Maximum	24	24	24	24	24	24	24	16	20	24

Finally, when respondents answered that they were not willing to pay anything (0€) for the change proposed, a follow up question was asked to know the main reasons. For the hypothetical situation in which kindergarten services had to be expanded, the main reason why

people were not willing to increase their monthly fee, or their annual taxes, was because they think the service can be expanded with current taxes and fees (40% of the responses). Moreover, 16% stated that they do not have enough information to answer, whereas the 12% affirmed they cannot afford to pay more. The rest of the responses were equally distributed among the remaining categories. Finally, some people marked the category "other", leaving an alternative reason. Some of these reasons are similar to the idea that the service can be expanded with current taxes and fees. On the other hand, there is a repeated opinion which considers private kindergartens. These people stated that if current fees increase, these fees would be very similar to private ones and, in that case, they would prefer private kindergartens since their facilities are newer, their schedule is more flexible, and they offer additional services such as lunch service.

Regarding the second hypothetical scenario in which the current number of public facilities is maintained, the main reason why people is not willing to pay more is also because they believe that the service can be maintained with current fees and taxes (28%). There is a 22% of the respondents who stated that they do not have enough information to answer, whereas many users and option users believe that municipal taxes should be increased instead of current fees. In the open alternative answer, there are people who stated that they prefer to change their current kindergarten to increase the fees. Others affirm that if there is not enough demand, it is reasonable that some facilities close since they would imply unnecessary costs. Finally, other people showed the same opinion than in the previous situation, stating that if fees increase, they would prefer private kindergartens. Specifically, one person pointed out that private kindergartens remain open during some holidays, like Christmas, whereas public ones close for more than 2 weeks.

From these comments, it can be concluded the importance of substitution effects, in this case, between public and private services. The main advantage of public kindergartens is the low fees. However, if these fees increase, they would be very similar in some cases to private ones, which are more competitive in terms of schedule, facilities, flexibility and services. Therefore, the local government must consider carefully this substitution effect when contemplating an increase in current fees.

Health centres

First of all, some behavioural and attitudinal questions were asked to classify respondents by user type. Moreover, they were also asked to assess their level of satisfaction regarding some attributes of the current health centre, such as waiting times or their doctor's schedule. However, this last question presented a high proportion of blank responses, maybe due to the non mobile-friendly feature of this kind of question.

Later, the current situation and the hypothetical scenario were presented to the surveyed. In this case, there is just one hypothetical scenario in which the demand is supposed to increase and, therefore, the service should be expanded. Some alternatives were given to respondents to choose their preferred way to expand the service, which are summarized in the table below.

Table 4.13: Results of alternatives for expanding primary health services

Option	Frequency	Percent	Cumulative Percent
Extend current schedule	131	64.53%	64.53%
Finish second health centre	58	28.57%	93.10%
Other	14	6.80%	100%
Total	202	100%	

Although in the first questionnaire 62% of the respondents stated that they wanted the second health centre to be finished, this percentage decreases considerably when other options are presented. About the "other" alternative, people suggested to extend the facilities of the current health centre or use current hospital facilities, while other state that current services should not be expanded.

For this destination, WTP values were asked as annual taxes. The central tendency values and WTP distribution for expanding primary health services are shown below.

Table 4.14: WTP Central tendency values for health centres

	WTP (€/Year)
Valid	137
Missing	66
Mean	46.35
Median	50
Std. Deviation	42.09
Minimum	0
Maximum	180

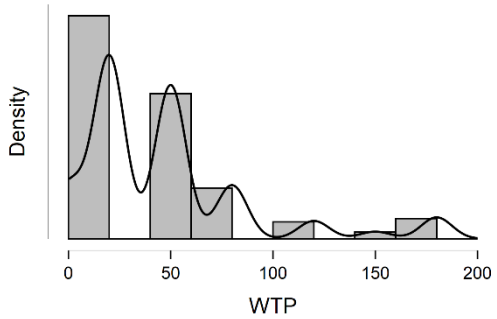

Figure 4.23: WTP distribution plot for health centres' expansion

For this service, there is a 33% of protest answers, while mean and median values are very similar, 46.35€ and 50€ respectively. Moreover, it can be concluded from the distribution plot that WTP values do not follow a normal distribution.

Just like in the kindergartens' analysis, several statistical tests have been performed to test whether there are significant differences between independent groups. First, it has been tested whether WTP differs by user type. It can be observed in *Figure 4.24* that, apparently, option users are willing to pay more than the other groups, with a mean value of 50€, which is 30€ higher. However, after performing a Kruskal-Wallis test, it can be concluded that there are not significant differences in the WTP of each user type.

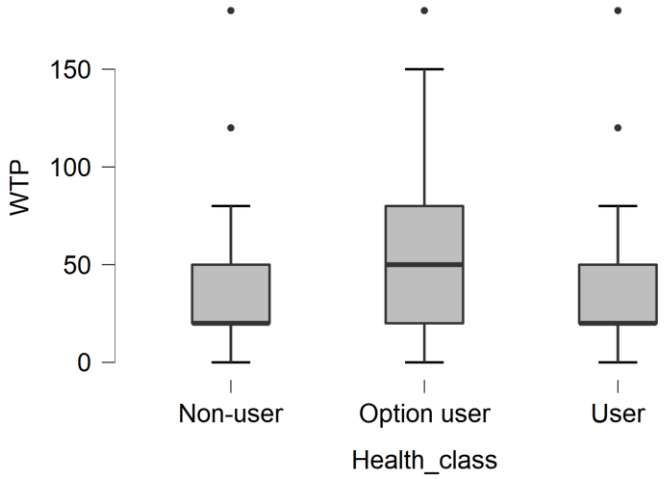

Figure 4.24: Box plot by user type for health centres

The same analysis has been done to check whether people is willing to pay a different amount depending on the option they have chosen to expand the service. It is obvious that the costs entailed to finish the second health centre are much higher than those for extending the schedule. Respondents may be conscious of this fact and may be willing to pay more for the first

option than the second one. Due to the low number of observations and the diversity of reasons, the alternative "other" has been discarded for this analysis. Looking at the data shown in *Table 4.15* and *Figure 4.25*, it can be appreciated that respondents who chose the option of finishing the second medical centre are willing to pay on average 54€, while the mean value for those who chose the option of extend the current schedule is 45€. However, the median value of both options is the same, 50€.

Table 4.15: WTP central tendency values by expansion alternative for health centres

	WTP (€/year)	
	Extend current schedule (1)	**Finish 2nd centre (2)**
Valid	82	47
Missing	49	11
Mean	45.37	54.04
Median	50	50
Std. Deviation	41.43	43.47
Minimum	0	0
Maximum	180	180

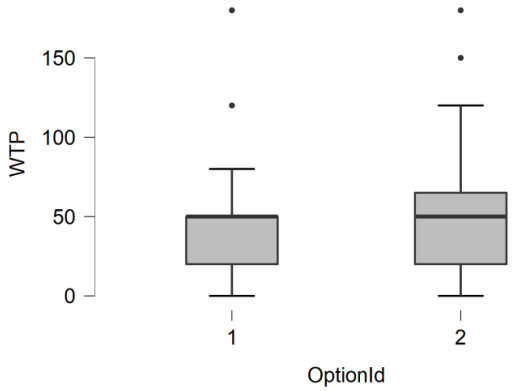

Figure 4.25: Box plot values by expansion alternative for health centres

After performing an Independent T-test, it can be concluded that there is not a significance difference in the WTP for each option.

Like in the analysis of kindergartens, several tests have been done in order to answer the fourth sub research question and know whether the WTP vary by different demographic groups. When comparing WTP values for different age groups, no relationship can be found between these two variables. As *Table 4.16* and *Figure 4.27* show, respondents aged between 18-24 and 45-54 are willing to pay less than the rest ones, and people over 55 is willing to pay a little bit more. However, the Kruskal-Wallis suggests that there is no significant difference between age groups.

Table 4.16: Mean and median WTP values by age group for heath centres' expansion

	WTP (€/year)				
Age group	**18-24**	**25-34**	**35-44**	**45-54**	**> 55**
Valid	28	37	18	18	36
Missing	4	14	22	16	10
Mean	39.64	51.35	39.44	47.78	49.17
Median	20	50	20	50	50
Std. Deviation	25.89	44.48	43.45	51.85	44.87
Minimum	20	0	0	0	0
Maximum	120	180	180	180	180

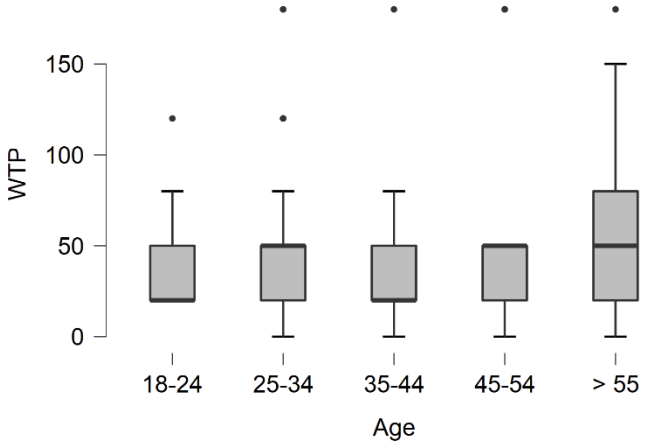

Figure 4.26: Box plot by age group for heath centres' expansion

For the rest of demographic categories (gender, income, occupation, and neighbourhood) the tests indicate that there are not significant differences in the WTP values reported by each group of respondents. All the tests can be found in Appendix G.

Finally, the results of the follow up questions show that the main reason why people is not willing to increase their annual taxes to extend primary health services is because they think that these services could be expanded with current taxes (60%). On the other hand, the 12% stated that they do not have enough information to answer, whereas other 8% affirmed they cannot afford to pay more. In the other reasons option, some respondents agree that more funds should be destinated to health services, but not through a tax increase.

4.6 Conclusions

After analysing and reflecting on the results provided by the different research methods, all research questions can be answered.

Regarding the first sub-research question, it can be concluded that there is a significant difference between the destinations that can be considered basic services (food stores, health facilities, pharmacies and schools), and the rest ones (libraries, sport facilities, hairdressers, and clothes shops). People appreciate having multiple options available of basic services more than secondary ones.

One argument that can explain this difference is the fact that people feel that they need more options of basic services to ensure the supply in any circumstance, while they can dispense with secondary services because they are not essential. This theory is supported by the reasons that people gave when asked about why they value having multiple options. For basic services, the motives that predominate are more related with option and non-use values. People value having alternative options of essential services to deal with uncertainty about the supplying and, also, to ensure that everyone has access to these services. On the other hand, for secondary services, people appreciate having multiple options to be able to choose the one that best suits their personal preferences or tastes, and also, to have variety. In this way, it is more related with use values and demand side uncertainty. These conclusions not only are useful to answer the second sub-research question, but also provide additional information about how the reasons differ by service type.

The third sub-research question aimed to discover which factors are considered most relevant for each destination. It can be concluded that these factors also vary for each destination type. In this way, proximity is one of the three most valued factors for all basic services, while it is one

of last ones for the rest ones. On the other hand, variety is more appreciated in secondary services than in essential ones. Finally, price is one of the most important attributes for all destinations, except from pharmacies.

About the fourth sub-research question, no relationship has been found between demographic characteristics of the respondents and WTP values for both destinations. It is normally expected that, at least, WTP varies with income level. However, in this case, almost 25% of the surveyed did not know or did not want to state their income, which has complicated this analysis.

After the completion of the first questionnaire, two final destinations were selected for the second part of the research. Just basic services were contemplated as possible candidates, as it was confirmed that people prefer to have more alternatives of basic services than secondary ones. Then, public services were preferred because they would facilitate the contingent valuation process. Finally, thinking about the most possible realistic scenario within the study area, kindergartens and primary medical centres were the final selected destinations.

In the case of kindergartens, more than half of the respondents are willing to pay 12€ per month (median value) for expanding current services in the case demand increases, whereas just 8€ to remain in the status quo in the hypothetical situation in which demand holds or decreases. Therefore, people are willing to pay more for expanding the service than for maintaining current facilities. This result is the opposite to the concept of loss aversion, which theoretically implies that people have a greater psychological attachment to things they currently possess, and thus, prefer avoiding losses to making equally high gains (Geurs, Haaijer, & van Wee, 2006). Furthermore, not all the respondents are willing to pay the same amounts, resulting in significant differences among respondents who are users, have been in the past, or will probably be in the future, and those who have no children, prefer private kindergartens or simply do not make use of the service. Consequently, users and option users are willing to pay around 12€ in both scenarios, while non-users just 6€ and 2€ for the first and second scenario, respectively. This is quite reasonable as users and option users are directly affected by any change in the conditions of the service.

On the other hand, there is no such a difference between users, option users and non-users in the case of medical centres. All the three groups present a mean WTP value of 50€ per year for expanding current services. One possible explanation is that everyone is a potential user of this service, even if they do not currently use it. Therefore, option values would probably be high for option and non-users, being willing to pay the same amounts than regular users. Also, non-use values may play a key role. It is also important to mention that there is not a significant difference in the values reported when considering the two possible alternatives to expand the service, although finishing the second medical centre is more expensive than extending current schedule.

In order to compare both destinations, mean values of kindergartens can be transformed into annual amounts by multiplying them by 8.5 (number of fees that kindergarten users pay per year). In this way, a mean WTP value of 102€ is obtained for the first scenario, compared to the 50€ of the medical centres.

The implications of these findings, in addition to a deeper reflection about them will be presented in the following chapter.

5 DISCUSSION

5.1 Introduction

The purpose of this chapter is to reflect on the research process and findings, providing a deeper interpretation of the results. The chapter first describes the practical/managerial implications as well as the academic implications of the research findings. Moreover, it enumerates some limitations and includes a reflection about the validity of the results. Finally, four future research avenues are suggested.

5.2 Practical and academic implication

Practical implications

Analysing this case study in particular, it can be concluded that there are other factors, apart from those described in *Chapter 2*, that sometimes influence the level of accessibility of individuals. Focusing on public destinations, the location and characteristics of opportunities available depend only on government decisions. Therefore, changes in the supply of these destinations can sometimes be considered as part of political strategies that may not match with citizens demands. This is reflected in this case study with the building of a second health centre which has never been finished, or with the creation of a new kindergarten which was empty for more than 3 years. One of the reasons of these bad management decisions is the lack of information about citizens' preferences and demands. This research can help policymakers to make more informed decisions and prevent public funds from being wasted.

Additionally, policy makers should not forget substitution effects when deciding the price/fee for certain public services. For this particular case, kindergarten fees depend on the level of the family's income. If fees are increased, people with higher income would be paying similar fees than private kindergartens, which offer more services. Therefore, increasing fees for expanding a service could have a counterproductive effect, decreasing the potential demand due to substitution effects. Based on the results of this case study, policy makers should not increase monthly fees more than 12€ as users would not accept higher amounts and may switch to private services. On the other hand, if annual municipal taxes had to be increased, citizens would not be willing to pay more than 50€ in the first scenario, and 17€ in the second one.

Moving to the results about the primary health centre, WTP values for the two alternatives proposed are not significantly different, hence, in case this service has to expanded, policy makers should pursue the first alternative (extend the schedule of the current medical centre) to better allocate funds, while the unfinished building could be used for other purpose that is more needed.

On the other hand, policy makers usually just focus on distance measures to ensure that everyone has access to basic service, but these measures ignore individual preferences and demands. However, in this research it has been reaffirmed that people do not always go to their closest destination and proximity may not be the most important factor. People seek to maximize their utility when choosing a particular destination, and this utility is dependent on other factors apart from proximity.

Moving to the private sector, this research can also provide useful information to current managers and future entrepreneurs. The first questionnaire revealed the most valued factors for each destination along with many suggestions for improvement in the open-ended questions. It also evaluated the appreciation of individuals about the current level of services. In this way, based on the results of this questionnaire, future entrepreneurs should not invest in

destination such as gyms or hairdressers in this area, although there is a great opportunity for clothe shops.

Academic implications

As explained in the introductory chapter, most of accessibility indicators imply that having more options is better and increases the total level of accessibility. However, when considering the law of diminishing returns, the added value of each additional destination is lower than the added value of the previous one. Moreover, there are other reasons why more options could not add value to individuals. One possible explanation, that applies only to public services, is the situation in which the offer of services highly exceeds the demand. In this case, public funds are wasted in paying unnecessary costs, such as the maintenance of an empty kindergarten. Increasing the number of public destinations can be perceived as a utility decrease instead. Also, for some private destinations, such as restaurants or clothe shops, the phenomenon of overchoice can occur, which means that, as people have more options available, they have more difficulties to make a choice and the feeling of repentance is stronger. The results of the research also revealed that sometimes is not the number of facilities what people value, but the supply capacity of those facilities. There could be the case that improving current facilities (for instance, extending the schedule or the facilities of the current medical centre) is preferred over having an additional facility.

Moving to the results obtained about kindergartens, it can be concluded that the concept of loss aversion does not apply in this case. If all groups are considered, mean and median WTP values for having an additional kindergarten are higher than those of keeping current services. However, if just users and options users are included in the analysis, median values are equalized. One explanation for these results is the fact that decreasing the number of options could be perceived as a welfare gain instead of a welfare loss. Currently, there are two kindergartens with 9 and 13 students and, in the case that the service had to be reduced, it is very likely that one of these two, or even both, close. Therefore, just 24 families would be affected by this decision and most of the population would not be willing to pay for keeping that destinations. However, if one of the kindergartens which has many students closes, WTP values would probably have been higher. Thus, the valuation of the added value of each option is dependent on the current situation and which specific destination individuals are valuing, and not only on the number of options itself.

Related to the values obtained from the different user's groups, it can also be inferred that each group (users, option users, and non-users) has different utility functions. Thus, an additional unit for users and option users would add considerably more value for them, than for a non-user. Moreover, it is not the same to state that more services are needed or that one cares about other citizens, than really being willing to pay for that service. In fact, in the first questionnaire many people state that they value having multiple options because they care about other citizens, but in the second questionnaire many non-users are not willing to pay anything for it.

In addition, a clear distinction can be observed between public and private destinations. On the one hand, if all options of a specific public destination (e.g. kindergartens) are perceived as equal, an increase in the number of options available would only add value in two cases. First, in the case the destination presents limited capacity and the service is (almost) saturated. Consequently, an increase in the number of options would benefit users and option users, and they would be willing to pay relatively high amounts to ensure that service. The second reason is that, independently of the capacity of the service, having a new facility would benefit those who are closer to it, as location is the only differential factor in public services.

On the other hand, when the destination is not public and other factors enter in the equation, it is more difficult to evaluate the added value of an additional destination, as it would depend on the specific characteristics of this new destination (same when a destination is removed). For instance, placing a new supermarket whose strategy is low prices, can add a lot of value to an individual who seeks sales and changes easily his/her preferred supermarket. On the other hand, it could not add value at all to other individual who is very loyal to his current supermarket and prefers product's quality over low prices. The conclusion is that it is not only the number of destinations what people value, but also the characteristics of that destinations. Every additional unit will add value to some individual, but not in the same proportion to the whole population, hence the collective effect is quite difficult to estimate.

5.3 Limitations

Study area and generalizability

The main criterion for selecting the study area has been the author's familiarity with the region since the city and its culture was already known, and information could be obtained easier. Moreover, the size of the population was considered adequate since it was big enough to obtain meaningful results, but manageable at the same time. It is not only the number of inhabitants what made the city a suitable candidate, but also the fact that almost everyone knows the services that the city offers. When selecting an area for a research of this type, it is important that respondents are familiar with the services they are being asked. If the research would have been performed in a bigger city, it should have been focused more on a neighbourhood level. Furthermore, due to the law of diminishing returns, it is better to select a population which has a similar initial level of accessibility, otherwise an increase in the number of options would increase the level of utility in different proportions, obtaining a lot of variability.

The level of generalizability of the results to other contexts is very low due to the high dependence on the area under study and the current situation in which the research has been done. However, in alike cities at the province and region level, probably similar results would have been obtained as the culture and context are quite comparable. When considering bigger cities, it is more difficult to generalize the results because the context and way of life is very different. For instance, the transport system is more complex (more public transport options available), the population density is higher, living costs are also usually higher, there is a greater preference for private services, etc. Finally, it is even more difficult to generalize the results to other countries in which the culture is actually more different. It should be noted that the public health and education system of Spain can be just compared with few countries such as Portugal or Italy.

Sample issues

As mentioned in *Chapter 4*, several tests have been made to assess the representativeness of the sample with respect to the population under study. For the samples of both questionnaires, these tests indicate that the sample is not representative when comparing age and gender variables, probably because of the self- section sampling process. Although different distribution channels have been used to reach as many groups as possible, it has been difficult to obtain responses of older people and male respondents. Some lessons were learnt from the first questionnaire, improving considerably the results in the second one. Consequently, the number of responses collected was almost doubled, higher proportion of people over 55 answered the questionnaire and some respondents (like students with no income) were discarded. Maybe having an internet panel would have facilitated this issue. Nonetheless, although the samples

do not exactly match the population proportions, all demographic groups were well equilibrated and exact representativeness is not essential in this research.

Methodology

The selected method also presents some limitations, specifically the second questionnaire which was based on stated preference techniques. These kinds of methods can present several biases. First, there could be risk of hypothetical bias as stated preference approaches rely on what people say they would do or prefer, but not on what they will really do (Geurs, Haaijer, & van Wee, 2006). To avoid this problem, the context of the study area has been investigated in depth in order to recreate the most realistic scenarios, including real facts. Second, there is also a risk of strategic bias as respondents may state values to influence future policies related with the destination included in the questionnaires. However, it was explained to them that the aim of the research was purely academic, avoiding this possible bias.

Other common bias in contingent valuation approaches is scope insensitivity, which refers to lack of sensitivity in stated values towards changes in the scope of service at issue. In other words, respondents' valuations should vary proportionally to the scope of the provided benefit. It is not expected that this relationship is linear due to the law of diminishing returns, but it is nevertheless expected to show some variation (OECD, 2018). In the case of kindergartens, the comparison of the stated values from both hypothetical situations reveals this lack of sensitivity. In fact, when a correlation analysis was done, WTP values for both scenarios were highly correlated, meaning that many people stated the same values independently of the situation. More precise values could have probably been obtained if half of the sample just answered one scenario, and the other half the remaining one.

Regarding payment cards themselves, several limitations are also entailed. The number and values of the options showed to respondents may influence the results of the research. Although the number of options may not strongly influence the elicit response (Kerr, 2001), the values showed can highly conditionate the results obtained. The selection of these values has been based on previous fees and considering the fact that there are multiple fees depending of the level of income. Moreover, the frequency of payment also influences the stated values (Johnston, et al., 2017). In this case, real frequency periods have been used, that is, kindergarten fees are payed monthly, whereas municipal taxes are payed once per year. However, annual values were considerably higher than the monthly increases, so that respondents may be willing to pay more when asked about monthly payments than annual ones because the values are smaller, and they might not calculate the total annual amount. A focus group interview or a pilot survey could have improved the estimates of the values, but due to time limitations it has not been possible. Nevertheless, just 6% of the respondents stated that they were willing to pay more than the upper limit of the payment list so that the range of values is relatively accurate.

Another possible pitfall of the method applied is related to the payment mechanism. When using taxes as the payment mechanism, respondents may not perceive a direct relationship between a tax increase and the improvement of a specific service. One of the reasons is the complicated tax system and government structure. Taxes are not only collected at the municipal level and sometimes the local government does not have the authority to make certain changes. Therefore, respondents may not be willing to pay more due to distrust on the government, lack of transparency, or similar reasons. This argument is reaffirmed by the high number of protest respondents who stated that they already pay enough taxes/fees for the service to be improved.

Destination type

Although several destinations have been analysed in the preliminary research and first questionnaire, the contingent valuation questionnaire has just focused on two public destinations. The reason of this choice was because public destinations can be considered as identical in terms of price, service, etc. and therefore, increases or decreases in the supply of the service do not depend on other factors. On the other hand, when private destinations are considered there are many factors that influence individuals' choices. For example, in the case of kindergartens, many people prefer private ones due to higher schedule flexibility, services offered, etc. If no distinction would have been made between private and public kindergartens, in the hypothetical case that a new kindergarten is created, people's responses would have depended on the type of kindergarten because the service being valued is not the same. Moreover, when price is an important factor and individuals directly pay for the service/products of the destination, such as in supermarkets, it does not make any sense to ask how much individuals are willing to pay for having an additional supermarket. In these situations, in which several factors affect people's decisions and price is a relevant factor, choice experiment methods are preferred.

Validation of the results

The aim of this research is mainly exploratory due to the novelty of the topic. It was known from the beginning that it was going to be difficult to validate the results of the contingent valuation part, since no previous research of this kind has been previously made and, thus, no comparable results are available.

In addition, the extraordinary situation in which the research has been developed (Covid-19 crisis) could have influenced the results obtained. First, people may be more reluctant to pay more for some services as the health crisis has triggered an economic crisis with many people losing their jobs. This is confirmed by the relatively high percentage of people who really value the service at issue but cannot afford to pay more. Moreover, estimates about health centres can also be biased due to this situation. Although the most affected sector by this crisis have been hospitals, some people may also perceive that public health services in general should be expanded.

5.4 Future Research Avenues

Based on the results of the research and limitations just described, some future research avenues are suggested.

A first interesting avenue for future research would be to perform a similar research in other contexts. Obtaining results from other cultures and areas can provide useful insights to compare rural regions with more urbanized cities, or countries in which the public system is different. This case study has focused on a small city located at a rural area of Spain. Future researchers could replicate the idea of this thesis and obtain information about citizens' preferences in bigger cities and evaluate which particular factors of each area could conditionate the results obtained.

A second direction to pursue in future research is to develop more sophisticated methods for the second part of the research, that is, the stated preference technique. It was not the aim of this research to design a very exact and complex method to elicit the monetary values, since the idea was to obtain some rough estimates due to the novelty of the research. In following research, more elaborated approaches can be used. Pilot questionnaires are recommendable to reduce the number of protest answers and narrow the possible monetary values. Moreover,

some models can be developed (linear regression, logit models, etc.) in order to assess the relationship between some dependent variables at interest and the elicit value.

A third plausible direction to include in future research is the inclusion of non-public destinations. Due to the method chosen for the contingent questionnaire, just two public destinations were considered as candidates in the second part of the research. The use of other methods can broaden the analysis to all kinds of destination, evaluating each destination type as a whole. In such case, the destination type would be one more variable of the model and comparisons could be easily made.

Finally, a fourth direction that future research might take is to consider non-essential services. One of the findings of the first questionnaire was that people prefer to have multiple options of basic services such as food stores or pharmacies. However, when looking at the number of facilities, it is observed that the number of hairdressers or clothe shops is much higher than schools, for example. The most particular feature of these services is the great variety they present. Each option is focused on a different market segment, and personal preferences play a key role in the valuation of these destinations. In this research, two basic destinations have been included in the contingent questionnaire. Despite the difficulty of evaluating secondary destinations, it would be very interesting to test whether having multiple options of basic services is really more appreciated when monetary values are asked.

6 CONCLUSIONS

6.1 Introduction

This final chapter summarizes the conclusions of the research by briefly answering the main research question and the fourth sub-research questions. Finally, it presents a reflection about the development of the thesis and the decisions that had to be made.

6.2 Answer to research question(s)

After reviewing the relevant literature about accessibility, a knowledge gap was identified which served as the starting point for this thesis. One of the remaining challenges in the field of accessibility was related with the economic quantification of the added value of having multiple options available to travel to. Therefore, the following main research question was formulated to address this challenge: *How much are individuals willing to pay for having different quantity of options of the same destination (e.g., a supermarket) to travel to?* In order to answer this question, several sub-questions were additionally formulated.

Regarding these sub-research questions, it can be concluded that people appreciate having multiple alternatives of basic services more than non-essential one. The main reason is because they want to ensure the supply of essential in any circumstance, while for secondary services the reasons are more related with personal preferences. On the other hand, when analysing the factors that are most valued for each destination type, proximity is preferred for basic services, while variety is more appreciated in secondary ones. Finally, it can be affirmed that no apparent relationship has been found between demographic variables and WTP values.

About the main research question, it can be concluded that each destination present different particularities that influence the amounts that people are willing to pay, and they are also quite affected by the specific area under study and the current situation. Therefore, the real world is not as simple as applying the law of diminishing returns.

Finally, one of the most important conclusions that can be extracted from this research is that it is not the number of options itself what people appreciate, but many other factors should be considered. For instance, loss aversion theory suggests that kindergarten respondents should be willing to pay more in the second scenario than in the first one. Although same values were obtained, when the results are placed in context, they make sense. Consequently, the WTP values to keep open a certain number of destinations, would highly depend on which specific option is likely to disappear. On the other hand, citizens may also prefer to have one big consolidated medical centre over two small ones. Therefore, capacity and characteristics of the destination being valued also play a key role when people evaluate the overall supply of the service. In the same way, for non-public destinations, many other factors influence the appreciated value for each destination since a greater variety is offered and people's preferences are very different. That is, the added value of an additional facility would highly be influenced by the specific characteristics of that facility.

6.3 Reflection

During the development of the thesis, several setbacks have occurred, and certain decision had to be made to reconduct the direction of the project.

One of the most important facts that has influenced the progress of the thesis has been the emergence of a global pandemic due to the spread of the virus SARS-Cov-2. Apart from the possible implications that this situation could have on the results, the initial research

methodology had to be modified too. Spain had suffered a total lockdown during the months that the research has been done, being online questionnaires the only possible method to collect information. The initial idea for the research methodology was to complement the first exploratory part of the research with face-to-face interviews to get the most representative sample and information about users of the specific services that were going to be analysed.

Another difficult task was to decide the final destinations for the second questionnaire. At the beginning supermarkets were going to be included. They were perfect candidates as they are considered basic services and a real case could have been presented since one of the most important supermarkets was going to close in November. However, due to the research method proposed, this destination could not be included. It did not make any sense to ask how much citizens are willing to pay to keep that supermarket because respondents may feel that they should not pay more to maintain that service and that they could not change a decision made by a private company.

Another relevant consideration to highlight is the usefulness of the open-ended questions in the questionnaires. Lots of information that helped to better understand some behaviours has been collected, as well as other possible alternatives which were not considered in the questionnaires.

Last but not least, during the diffusion of the second questionnaire, one of councils of the local government was reached and he stated his interest in knowing the results of the research to take appropriate actions in consequence. It has been very rewarding to know that the contribution of this thesis will transcend beyond the academic field and it will help to improve the quality of life of Villarrobledo's citizens.

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APPENDIX

A: Complete Questionnaires

Exploratory questionnaire

Start of Block: Introduction

Q1

You are being invited to participate in a research study entitled "The added value of having more options" This study is being carried out by Maria del Mar Parra from the Dutch university TU Delft. The purpose of this study is to know the opinion of people like you on the number of services, both public and private, that the town of Villarrobledo offers, and it will take approximately 5 to 10 minutes to complete. The data will be used for statistical and academic analysis. Your participation in this study is entirely voluntary and you can withdraw at any time. You are free to omit any questions. We believe that there are no known risks associated with this research study. Your responses in this study will remain confidential. We will minimize any risk by being unable to identify the person completing the study.

* We all know that these are difficult times due to COVID-19, and some of the questions in this survey don't make much sense at the moment. I hope that this situation helps us to value everything we have and that this survey will serve to distract you a bit.

End of Block: Introduction

Start of Block: General

Q2 This survey aims to know how citizens value having various alternatives or options regarding different services. For example, imagine that there was only one supermarket in your city. If they open a second supermarket, you may be happier because this new one is closer to your home, or is cheaper, or has more variety. But now imagine that there are 10 supermarkets in your city. If they opened a new one, would you value it? By filling out this survey we can find out!

Q3 Rate from 1 to 5 the importance for you of having several options of the following services:

	Nothing important	Less important	Indifferent	Important	Very important
Food stores	○	○	○	○	○
Schools	○	○	○	○	○
Libraries	○	○	○	○	○
Clinic	○	○	○	○	○
Pharmacy	○	○	○	○	○
Public sports facilities	○	○	○	○	○
Gyms	○	○	○	○	○
Hairdressers	○	○	○	○	○
Clothes shops	○	○	○	○	○

End of Block: General

Start of Block: Election

Q4 Select the services you want to deepen and give your opinion on. At least 2, but the more the better (each block is answered in approximately 2 and a half minutes)

- ☐ Supermarkets and food stores
- ☐ Health: Health centre, hospital and pharmacies
- ☐ Education: nursery schools, colleges, institutes and libraries
- ☐ Sports: sports halls, swimming pool and gyms
- ☐ Hairdressers and clothing stores

End of Block: Election

Start of Block: Food stores

Q5 How often do you usually do groceries?

- ○ Less than once a month
- ○ Between once a month and once every 15 days
- ○ Between once every 14 days and once a week
- ○ More than once a week

Q6 Where do you usually do groceries?

- ○ Supermarkets
- ○ Local shops (butchers, neighbourhood stores, etc.)
- ○ Both of them

Display This Question:

If Q6 =Supermarkets

Or Q6 = Both

Q7 How many different supermarkets do you usually go to during a month?

- ○ 1 (always the same)
- ○ 2
- ○ 3
- ○ Over 3

Display This Question:

If Q6 = Local shops (butchers, neighborhood stores, etc.)

Or Q6 = Both of them

Q8 Select the type of local commerce that you use most frequently

- ☐ Butcher shop
- ☐ Fish shop
- ☐ Fruit store
- ☐ Neighbourhood stores
- ☐ Others: _____

Display This Question:

If Q6 != Local shops (butchers, neighborhood stores, etc.)

Q9 Which transport mode do you usually use to go to the supermarket?

- ○ Car (driver)
- ○ Car (passenger)
- ○ Motorcycle
- ○ Walking
- ○ Bike
- ○ Public transport
- ○ Other: _____

Display This Question:

If Q6 != Supermarkets

Q10 Which transport mode do you usually use to go to local food stores?

- ○ Car (driver)
- ○ Car (passenger)
- ○ Motorcycle
- ○ Walking
- ○ Bike
- ○ Public transport
- ○ Other: _____

Q11 Do you usually go to the grocery store closest to your home?

- ○ Yes
- ○ No

Q12 Select the two aspects that you value most in a food store:

- ☐ Proximity
- ☐ Price
- ☐ Quality of the products
- ☐ Service
- ☐ Brands
- ☐ Variety of products
- ☐ Schedule
- ☐ Other _____

Q13 Do you always buy the same product (e.g. meat, fish, milk, ...) in the same place?

- ○ Yes always
- ○ Yes, normally
- ○ No, I change

Q14 Villarrobledo currently has 7 supermarkets and approximately 15 local food stores. Do you think the number of supermarkets and food stores is adequate in your city?

- ○ Yes
- ○ No, I think there are too many
- ○ No, I think there are not enough
- ○ Indifferent

Q15 Evaluate your level of satisfaction with the following aspects related to food stores in your city:

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Proximity	○	○	○	○	○
Schedule	○	○	○	○	○
Variety	○	○	○	○	○

Q16 From an individual point of view, do you value having different options in which to make the purchase? (Select the options with which you most agree)

- ☐ No, I always go to the same store
- ☐ No, I don't care
- ☐ Yes, I usually buy products in different stores
- ☐ Yes, I like to have variety
- ☐ Yes, I appreciate having other alternatives in case the place I usually go to is closed, the prices go up, or it doesn't have the product I need
- ☐ Other reasons: _____

Q17 Thinking about the community, do you value having different options in which to make the purchase? (Select the options with which you most agree)

- ☐ No, I don't care
- ☐ No, I only care about the ones I go to frequently
- ☐ Yes, to avoid saturation / queues
- ☐ Yes, so that all citizens have a food store near their home
- ☐ Other reasons: _____

Q18 What is your opinion about the closure of the Mercadona located in the city centre?

- It does not affect me because I do not usually use it
- It affects me because it is my usual supermarket
- It affects me because sometimes I do groceries there
- Other opinion _____

Q19 Any other comments related to food stores in your city:

_____

End of Block: Food stores

Start of Block: Health

Q20 Do you use any type of private medical service (policlinic, private doctor, etc.)?

- Yes
- No
- I'm not sure

Q21 Villarrobledo currently has a single health centre. Do you think that the number of primary care services is adequate in your city?

- Yes
- No, I think there are too many
- No, I think there are not enough
- Indifferent

Q22 Do you think the number of specialized care services offered by the hospital is adequate in your city?

- Yes
- No, I think there are too many
- No, I think there are not enough
- Indifferent

Q23 Which mode of transportation do you usually use to go to the health centre?

- ○ Car (driver)
- ○ Car (passenger)
- ○ Motorcycle
- ○ Walking
- ○ Bike
- ○ Public transport
- ○ Other: _____

Q24 Which mode of transport do you usually use to go to the hospital?

- ○ Car (driver)
- ○ Car (passenger)
- ○ Motorcycle
- ○ Walking
- ○ Bike
- ○ Public transport
- ○ Other: _____

Q25 Evaluate your level of satisfaction with the following aspects related to the sanitary services of your city:

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Does not apply
Ease of access to the health center	○	○	○	○	○	○
Quality of service of the health center	○	○	○	○	○	○
Health Center schedule	○	○	○	○	○	○
Ease of access to the hospital	○	○	○	○	○	○
Hospital quality of service	○	○	○	○	○	○
Hospital schedule	○	○	○	○	○	○

Q26 As you may know, in 2007 the construction of a second health centre began in Socuéllamos neighbourhood, but it was paralyzed due to the crisis. What is your opinion about this health centre?

- It should be finished to have another health centre
- It should be finished, but for another purpose
- It shouldn't be finished
- Another opinion: _____

Q27 Any other comments about your city's health services:

_____

Q28 Villarrobledo currently has 13 pharmacies. Do you think the number of pharmacies in your city is adequate?

- Yes
- No, I think there are not enough
- No, I think there are too many
- Indifferent

Q29 Do you always go to the same pharmacy?

- Yes, the closest to my house
- Yes, but it is not the closest to my house
- No
- I don't usually go to the pharmacy

Display This Question:

If Q29 != I don't usually go to the pharmacy

Q30 Which transport mode do you usually use to go to the pharmacy?

- Car (driver)
- Car (passenger)
- Motorcycle
- Walking
- Bike
- Public transport
- Other: _____

Display This Question:

If Q29 = No

Q31 How many different pharmacies do you usually go to?

- 2
- 3
- > 3

Q32 From an individual point of view, do you value having several pharmacies in your city? (Select the options with which you most agree)

- No, I always go to the same pharmacy
- No, I don't care
- Yes, in case one is closed to go to another
- Yes, in case they don't have what I need to have other alternatives
- Yes, because I usually go to several pharmacies
- Other reasons: _____

Q33 Thinking about the community, do you value having multiple pharmacies in your city? (Select the options with which you most agree)

- No, I don't care
- No, I just care about the ones I go
- Yes, so that all citizens have one close to their homes
- Yes, to avoid queues / saturations
- Other reasons: _____

Q34 Select the two aspects you value most in a pharmacy:

- Proximity
- Price
- Service
- Variety of products
- Schedule
- Other: _____

End of Block: Health

Start of Block: Education

Q35 Have you or your children made use of kindergarten services in Villarrobledo?

- Yes, public
- Yes, private
- No

Q36 Have you or your children completed primary education in Villarrobledo?

- Yes
- No

Q37 Have you or your children attended secondary education in Villarrobledo?

- Yes
- No

Q38 Villarrobledo currently has 8 kindergarten. Do you think the number of kindergartens is adequate in your city?

- Yes
- No, I think there are too many
- No, I think there are not enough
- Indifferent

Display This Question:

If Q35 != No

Q39 Have you or your children gone to the closest kindergarten to your home?

- Yes
- Do not
- I'm not sure

Q40 Villarrobledo currently has 7 primary schools. Do you think the number of primary schools is adequate in your city?

- Yes
- No, I think there are too many
- No, I think there are not enough
- Indifferent

Q41 Villarrobledo currently has 3 secondary schools. Do you think the number of secondary schools is adequate in your city?

- Yes
- No, I think there are too many
- No, I think there are not enough
- Indifferent

Display This Question:

If Q35 != No

Or Q36 = Yes

Or Q37 = Yes

Q42 Which transport mode do you or your children usually use to go to schools?

- Car
- Walking
- Public transport
- Bike
- Other: _____

Display This Question:

If Q36 = Si

Q43 Have you / your children gone to the closest school to your home?

- Yes
- No
- I'm not sure

Display This Question:

If Q35 != No

Or Q36 = Yes

Or Q37 = Yes

Q44 Evaluate your level of satisfaction with the following aspects related to the educational centres of your city:

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Does not apply
Proximity to my house	○	○	○	○	○	○
Proximity to my work	○	○	○	○	○	○
Schedule	○	○	○	○	○	○
Educative offer	○	○	○	○	○	○
Number of children per class	○	○	○	○	○	○

Q45 From an individual point of view, do you value having several educational centres in your city? (Select the options with which you most agree)

- ☐ No, it's indifferent to me
- ☐ No, because I only use one
- ☐ No, because I have no children
- ☐ Yes, in case there is any unforeseen event in the centre where my children go
- ☐ Yes, in order to choose the one that best suits my educational preferences
- ☐ Other reasons: _____

Q46 Thinking about the community, do you value having several educational centres in your city? (Select the options with which you most agree)

- ☐ No, it's indifferent to me
- ☐ No, because I have to pay more taxes
- ☐ Yes, so that all citizens have one near their home
- ☐ Yes, to reduce the number of children per class
- ☐ Other reasons: _____

Display This Question:

If Q35 != No

Or Q36 = Yes

Or Q37 = Yes

Q47 Select the two aspects that you value most in an educational centre:

- ☐ Proximity to my house
- ☐ Proximity to my work
- ☐ Cost
- ☐ Service offered
- ☐ Schedule
- ☐ Other _____

Q48 Do you use the library service?

- ○ Yes
- ○ No

Q49 Villarrobledo currently has 2 libraries. Do you think the number of libraries is adequate in your city?

- ○ Yes
- ○ No, I think there are not enough
- ○ No, I think there are too many
- ○ Indifferent

Display This Question:

If Q48 = Yes

Q50 Are you satisfied with the library schedule?

- ○ Totally satisfied
- ○ Very satisfied
- ○ Neutral
- ○ Dissatisfied
- ○ Very dissatisfied

Q51 From an individual point of view, do you value having several libraries in your city? (Select the options with which you most agree)

- ☐ No, it's indifferent to me
- ☐ No, because I don't usually use them
- ☐ No, because I'm only going to one
- ☐ Yes, in case one is closed to go to another
- ☐ Other reasons: _____

Q52 Thinking about the community, do you value having several libraries in your city? (Select the options with which you most agree)

- ☐ No, it's indifferent to me
- ☐ No, because I have to pay more taxes
- ☐ No, because it is not a basic service
- ☐ Yes, so that the citizens have one near their house
- ☐ Yes, so they are not full
- ☐ Other reasons: _____

Display This Question:

If Q48 = Yes

Q53 Do you usually go to the nearest library?

- ○ Yes
- ○ No

Display This Question:

If Q48 = Yes

Q54 Which transport mode do you usually use to go to the library?

- ○ Car (driver)
- ○ Car (companion)
- ○ Motorcycle
- ○ Walking
- ○ Public transport
- ○ Bike
- ○ Other: _____

Q55 Any other comments related to the educational services of your city:

_____

End of Block: Education

Start of Block: Sports

Q56 Do you use any public sports facility?

- ☐ No
- ☐ Paddle
- ☐ sports Centre
- ☐ Swimming pool
- ☐ Football tracks
- ☐ Aerobics
- ☐ Others: _____

Q57 Do you make or have used private sports facilities (gyms)?

- ○ Yes
- ○ No

Q58 Currently, Villarrobledo has 5 pavilions, 1 swimming pool and several sports centres. Do you think that the number of sports facilities is adequate in your city?

- ○ Yes
- ○ No, I think there are too many
- ○ No, I think there are not enough
- ○ Indifferent

Q59 From an individual point of view, do you value having several sports facilities in your city? (Select the options with which you most agree)

- ☐ No, it's indifferent to me
- ☐ No, because I always use the same
- ☐ No, because I don't usually use them
- ☐ Yes, in case one is closed have other options
- ☐ Yes, in order to choose the one that best suits my sporting preferences
- ☐ Another reason: _____

Q60 Thinking about the community, do you value having several sports facilities in your city? (Select the options with which you most agree)

- ☐ No, it's indifferent to me
- ☐ No, because it is very expensive to maintain them
- ☐ No, because it is not a basic service
- ☐ Yes, so that all citizens have a fence
- ☐ Yes, to avoid saturation
- ☐ Another reason: _____

Display This Question:

If Q57 = Yes

Q61 Have you always been to the same gym?

- ○ Yes
- ○ No

Display This Question:

If Q61 = No

And Q57 = Yes

Q62 Why?

- ○ Price
- ○ Location
- ○ Services
- ○ Other: _____

Q63 Villarrobledo currently has 4 main gyms. Do you think the number of gyms is adequate in your city?

- ○ Yes
- ○ No, I think there are too many
- ○ No, I think there are not enough
- ○ Indifferent

Q64 From an individual point of view, do you value having several gyms in your city? (Select the options with which you agree most)

- ☐ No, it's indifferent to me
- ☐ No, because I always go to the same
- ☐ No, because I don't usually go
- ☐ Yes, I usually go to different gyms / activities
- ☐ Yes, in order to choose the one that best suits my preferences
- ☐ Yes, in case one closes to have other alternatives
- ☐ Yes, in case mine increases the price to have other alternatives
- ☐ Yes, in case I want to try new things in the future
- ☐ Another reason: _____

Q65 Thinking about the community, do you value having several gyms in your city? (Select the options with which you most agree)

- ○ No, I don't care
- ○ No, I only care about the ones I use
- ○ No, because it is not a basic service
- ○ Yes, so that everyone has one close to home
- ○ Yes, to promote sport
- ○ Yes, to avoid saturations
- ○ Other motives: _____

Display This Question:

If Q57 = Yes

Q66 Select the two aspects that you value most in a gym:

- ☐ Location
- ☐ Price
- ☐ Schedule
- ☐ Service
- ☐ Variety of activities / equipment
- ☐ Equipment Quality

Q67 Any other comments related to the sports facilities of your city:

_____

End of Block: Sports

Start of Block: Hairdressers

Q68 Do you always go to the same hairdresser?

- Yes
- No

Q69 Currently, Villarrobledo has approximately 20 hairdressers, do you think the number of hairdressers is adequate in your city?

- Yes
- No, I think there are too many
- No, I think there are not enough
- Indifferent

Q70 From an individual point of view, do you value having several hairdressers in your city? (Select the options with which you most agree)

- ☐ No, it's indifferent to me
- ☐ No, because I always go to the same place
- ☐ No, because it is not a service that I use frequently
- ☐ Yes, in order to have other alternatives in case one is closed
- ☐ Yes, in order to choose the one that best suits my tastes
- ☐ Yes, because I usually go to more than one
- ☐ Another reasons: _____

Q71 Thinking about the community, do you value having several hairdressers in your city? (Select the options with which you most agree)

- ☐ No, it's indifferent to me
- ☐ No, because I only care about the ones that I go
- ☐ No, because it is not a basic service
- ☐ Yes, so that all citizens have one close to their home
- ☐ Yes, to avoid queues
- ☐ Another reasons: _____

Q72 Which transport mode do you usually use to go to the hairdresser?

- ○ Car (driver)
- ○ Car (passenger)
- ○ Walking
- ○ Public transport
- ○ Other: _____

Q73 Select the two aspects that you value most in a hairdresser:

- ☐ Proximity
- ☐ Price
- ☐ Service
- ☐ Schedule
- ☐ Outcome
- ☐ Other: _____

End of Block: Hairdressers

Start of Block: Clothe shops

Q74 Do you usually buy clothes in Villarrobledo?

- ○ Always
- ○ Most of the time
- ○ Rarely
- ○ Never

Display This Question:

If Q74 != Never

Q75 Do you usually buy in the same stores?

- ○ Yes
- ○ No

Q76 How often do you usually go to clothing stores?

- ○ Less than once a month
- ○ Once a month
- ○ More than once a month

Q77 Currently, Villarrobledo has approximately 20 clothing stores, do you think the number of clothing stores is adequate in your city?

- ○ Yes
- ○ No, I think there are too many
- ○ No, I think there are not enough
- ○ Indifferent

Q78 Do you think the variety of stores is appropriate in your city?

- ○ Yes
- ○ No
- ○ Indifferent

Q79 From an individual point of view, do you value having several clothing stores in your city? (Select the options with which you most agree)

- ☐ No, I always go to the same one
- ☐ No , I don't care
- ☐ No, because I usually go shopping in another city
- ☐ Yes, I usually buy in several stores
- ☐ Yes, I like to have variety
- ☐ Yes, to have other alternatives if the store I usually go to is closed, the prices go up, ...
- ☐ Other reasons: _____

Q80 Thinking about the community, do you value having several clothing stores in your city? (Select the options with which you most agree)

- ○ No, I don't care
- ○ No, I only care about the ones I go
- ○ No, because it is not a basic service
- ○ Yes, so that all citizens have a fence
- ○ Yes, to avoid queues
- ○ Other motives: _____

Q81 Select the two aspects that you value most from a clothing store:

- ☐ Proximity
- ☐ Price
- ☐ Variety
- ☐ Brands
- ☐ Schedule
- ☐ Product
- ☐ Other _____

End of Block: Clothe shops

Start of Block: Demography

Q82 Age

- ☐ Under 18
- ☐ 18 - 24
- ☐ 25 - 34
- ☐ 35 - 44
- ☐ 45 - 54
- ☐ 55 - 64
- ☐ 65 - 74
- ☐ 75 - 84
- ☐ 85 or older

Q83 Gender

- ○ Male
- ○ Female
- ○ I prefer not to answer

Q84 Occupation

- ○ Full-time employee
- ○ Part-time employee
- ○ Unemployed
- ○ Student
- ○ Retired
- ○ Other

Q85 Neighbourhood

- Centre
- Asturias
- Socuéllamos
- Pintores
- Juan Valero
- San Anton
- Nueva Villa
- I'm not sure

Q86 Which transport mode do you use most frequently to get around your city?

- Car (driver)
- Car (passenger)
- Motorcycle
- Public transport
- Bike
- Walking
- Other: _____

End of Block: Demography

Second quantitative questionnaire

Start of Block: Introduction and consent

Q1 You are being invited to participate in a research study entitled “The added value of having more options” This study is being carried out by Maria del Mar Parra from the Dutch university TU Delft. The purpose of this survey is to know the opinion of people like you about the public services of **kindergartens and health centre** that the town of Villarrobledo offers, and it will take approximately **5 to 10 minutes** to complete it. The data will be used for statistical and academic analysis. Your participation in this study is completely voluntary and you can withdraw at any time. You are free to skip any questions. Your responses in this study will be confidential. We will minimize any risk by being unable to identify the person completing the study.

End of Block: Introduction and consent

Start of Block: Kindergarten

Q2 Do you have children?

- Yes
- No

Display This Question:

If Q2 = Yes

Q3 Have your children ever gone to a kindergarten in Villarrobledo?

- Yes, in the past
- Yes, currently
- No

Display This Question:

If Q3 = Yes, in the past

Or Q3 =Yes, currently

Q4 Which kind of kindergarten? (If they have gone to both, mark public)

- Public
- Private

Display This Question:

If Q3 = No

Or Q2 = No

Q5 Do you think you could use Villarrobledo's kindergarten services in the future?

- Probably yes
- Probably not
- I'm not sure

Display This Question:

If Q5 = Probably Yes

Q6 Which type of kindergarten would you prefer?

- Public
- Private
- Indifferent

Display This Question:

If Q5 = Probably not

Or Q5 = I am not sure

Q7 Even if you are not a user of this service, nor do you plan to be, do you care about this service?

- Yes, because other members of my family or friends use it or could use it
- Yes, because I think it is an essential service for citizens
- Yes, because ... (specify) _____
- No, I don't care

Skip To: End of Block If Q7 = No, I don't care

Display This Question:

If Q4 = Private

Or Q6 = Private

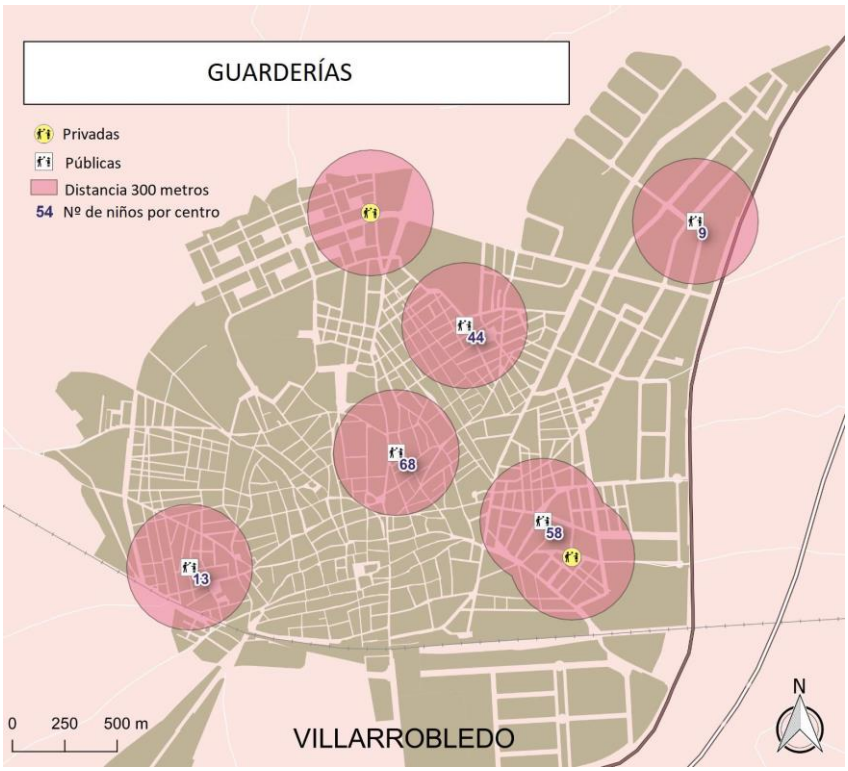
Q8 Even if you prefer private kindergartens, do you care about public kindergartens?

- Yes, because other members of my family or friends use it or could use it
- Yes, because I think it is an essential service for citizens
- Yes, because ... (specify) _____
- No, I don't care

Skip To: End of Block If Q8 = No, I don't care

Q9

Villarrobledo currently has 5 public and 2 private kindergartens. The following map shows the location of each one, and the students by centre of the current course. Of the 5 public kindergartens, only two have capacity for more children (at Socuéllamos neighbourhood and the industrial park), although the latter only opens in the afternoon.



Display This Question:

If Q3 = Yes, in the past

Or Q5 = Probably yes

Or Q5 = I am not sure

Q10 Below are several hypothetical situations, answer the questions by imagining you have a child who is currently going to a kindergarten

Q11

Imagine that the demand increases, and **public** childcare services have to be expanded, which of the following options would you prefer?

- Take advantage of existing facilities and extend the hours (open the one at the industrial park in the morning) or the number of classrooms (at the one in the Socuéllamos)
- Open a new kindergarten that better suits the preferences of citizens (hours, location, ...)

Q12 Below are the current monthly fees for public kindergartens, according to municipal ordinance No. 31.

A) Matrícula	Euros
* Por la formalización de la misma en cada curso	20,00

B) Módulo de Ordenanza Renta per cápita - euros/año	Euros/mes Horario escolar de mañana (8 a 15 horas)	Euros/mes Con horario ampliado (tarde)	Euros/mes Horario escolar de tarde exclusivamente (16 a 20 horas)
a) Hasta 3.600,00	24,00	40,00	16,00
b) De 3.600,01 a 4.200,00	40,00	56,00	27,00
c) De 4.200,01 a 5.200,00	64,00	80,00	43,00
d) De 5.200,01 a 8.500,00	80,00	96,00	54,00
e) De 8.500,01 a 12.000,00	96,00	112,00	64,00
f) De 12.000,01 en adelante	122,00	128,00	82,00

Display This Question:

If Q4 = Public

Or Q6 = Public

Or Q6 = Indifferent

Q13 In order to expand services, more revenue would be needed to meet the new expenses. Would you be willing to increase your current monthly fee so that services are expanded?

- Yes
- No

Display This Question:

If Q13 = Yes

Q14 How much would you be willing to increase the monthly fee for kindergarten services to be expanded?

- € 4
- € 8
- € 12
- € 16
- € 20
- > € 20 _____

Display This Question:

If Q7 = Yes, because other members of my family or friends use it or could use it

Or Q7 = Yes, because I think it is an essential service for citizens

Or Q7 = Yes, because... (specify)

Or Q8 = Yes, because other members of my family or friends use it or could use it

Or Q8 = Yes, because I think it is an essential service for citizens

Or Q8 = Yes, because... (specify)

Q15 In order to expand services, more income is needed to meet new expenses. Would you be willing to pay more municipal taxes to expand the service?

- Yes
- No

Display This Question:

If Q15 = Yes

Q16 Which of the following amounts would you be willing to pay annually, by increasing municipal taxes, to expand kindergarten services?

- € 20
- € 50
- € 80
- € 120
- € 150
- > € 150

Display This Question:

If Q13 = No

Or Q15 = No

Q17 For what reason / s?

- [ ] I think that the service can be offered with current fees

Q13 = No

- [ ] Municipal taxes should be increased, not monthly fees

Q15 = No

- [ ] Monthly fees should be increased, not municipal taxes
- [ ] I cannot afford to pay more
- [ ] It is not a priority service
- [ ] I would not benefit from the change
- [ ] I prefer private kindergartens
- [ ] A lot of money has already been spent on public kindergartens
- [ ] I don't have enough information to answer

Q15 = No

- [ ] The extra taxes will be used for other purposes
- [ ] Other: _____

Display This Question:

If Q4 = Public

Or Q6 = Indifferent

Or Q6 = Public

Q18 Now imagine that current demand is maintaining or decreasing slightly. If income were not increased, one of the current kindergartens would close (probably the ones with the fewest students). Would you be willing to increase your monthly fee so that these kindergartens are not closed?

- ○ Yes
- ○ No

Display This Question:

If Q18 = Yes

Q19 How much would you be willing to increase the monthly fee to keep current kindergarten services?

- € 4
- € 8
- € 12
- € 16
- € 20
- > € 20

Display This Question:

If Q7 = Yes, because other members of my family or friends use it or could use it

Or Q7 = Yes, because I think it is an essential service for citizens

Or Q7 = Yes, because... (specify)

Or Q8 = Yes, because other members of my family or friends use it or could use it

Or Q8 = Yes, because I think it is an essential service for citizens

Or Q8 = Yes, because... (specify)

Q20 In order to expand services, more income is needed to meet new expenses. Would you be willing to pay more municipal taxes to expand the service?

- Yes
- No

Display This Question:

If Q20 = Yes

Q21 Which of the following amounts would you be willing to pay annually, by increasing municipal taxes, to keep current kindergarten services?

- € 20
- € 50
- € 80
- € 120
- € 150
- > € 150

Display This Question:

If Q18 = No

Or Q20 = No

Q22 For what reason / s?

- [ ] I think the service could be maintained at current fees and taxes

Q18 = No

- [ ] Municipal taxes should be increased, not monthly fees

Q20 = No

- [ ] Monthly fees should be increased, not city taxes
- [ ] I cannot afford to pay more
- [ ] It is not a priority service
- [ ] I would not benefit from the change
- [ ] I prefer private nurseries
- [ ] A lot of money has already been spent on public guards
- [ ] I don't have enough information to answer

Q20 = No

- [ ] The extra taxes will be used for other purposes
- [ ] Other: _____

End of Block: Kindergarten

Start of Block: Medical Centers

Q23 How often do you go to your family doctor?

- ○ More than once a month
- ○ Between once a month and once every three months
- ○ Less than once every three months

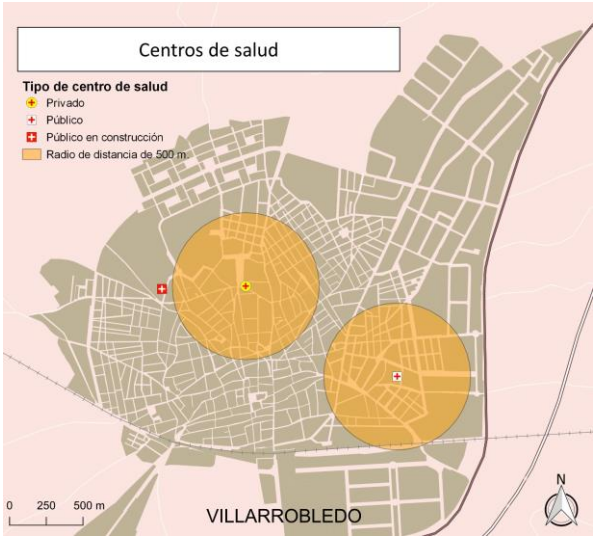
Q24 Evaluate your level of satisfaction regarding the following aspects related to the health centre:

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Does not apply
Waiting time since requesting the appointment	○	○	○	○	○	○
Waiting time on appointment day	○	○	○	○	○	○
Your family doctor's schedule	○	○	○	○	○	○
Waiting time for emergencies	○	○	○	○	○	○

Q25 Do you use any private medical service (polyclinic, medical insurance, ...) in the last 12 months?

- ○ Yes
- ○ No
- ○ I'm not sure

Q26 Below there is a map showing the location of the current health centres. The current public health centre has a schedule from 8:00 to 15:00. Also, it is shown the work that began in 2007 to have a second health centre in the Socuéllamos neighbourhood.



Q27

Imagine that the demand for **public** primary care services increases, which of the following options would you prefer to expand these services?

- To extend the schedule to the afternoons of the current medical Centre
- To finish the work of the Sucuellamos neighbourhood medical Centre (have an additional one)
- To not extend the service (therefore, waiting times would increase)
- Another option: _____

Display This Question:

If Q27 != o to not extend the service (therefore, waiting times would increase)

Q28 Which of the following amounts would you be willing to pay annually, through an increase in municipal taxes, to expand current primary care services through the option you have just chosen?

- € 0
- € 20
- € 50
- € 80
- € 120
- € 150
- > € 150

Display This Question:

If Q27 = To not extend the service (therefore, waiting times would increase))

Or Q28 = 0€

Q29 For which reason / s?

- ☐ I think the service could be maintained at current fees and taxes
- ☐ I think it is an unnecessary expense
- ☐ I cannot afford to pay more
- ☐ It is not a priority service
- ☐ I would not benefit from the change
- ☐ I prefer private healthcare
- ☐ A lot of money has already been spent on expanding this service
- ☐ I don't have enough information to answer
- ☐ The extra taxes will be used for other purposes
- ☐ Other: _____

End of Block: Medical Centers

Start of Block: Demographics

Q30 Age

- ○ 18-24
- ○ 25-34
- ○ 35-44
- ○ 45-54
- ○ > 55

Q31 Gender

- ○ Male
- ○ Female
- ○ Other / I prefer not to answer

Q32 Occupation

- Full time employee
- Part-time employee
- Self-employed
- Student
- Unemployed
- Retired
- Other

Q33 Individual annual net income

- <€ 5,000
- € 5,000 - € 10,000
- € 10,000 -15,000
- € 15,000 - € 20,000
- € 20,000 - € 25,000
- € 25,000 - € 30,000
- € 30,000 - € 35,000
- € 35,000 - € 40,000
- > € 40,000
- I don't know / I prefer not to answer
- Student

Q34 Neighbourhood

- Centre
- Asturias
- Socuellamos
- Painters
- Juan Valero
- Saint Anton
- New Villa
- I'm not sure

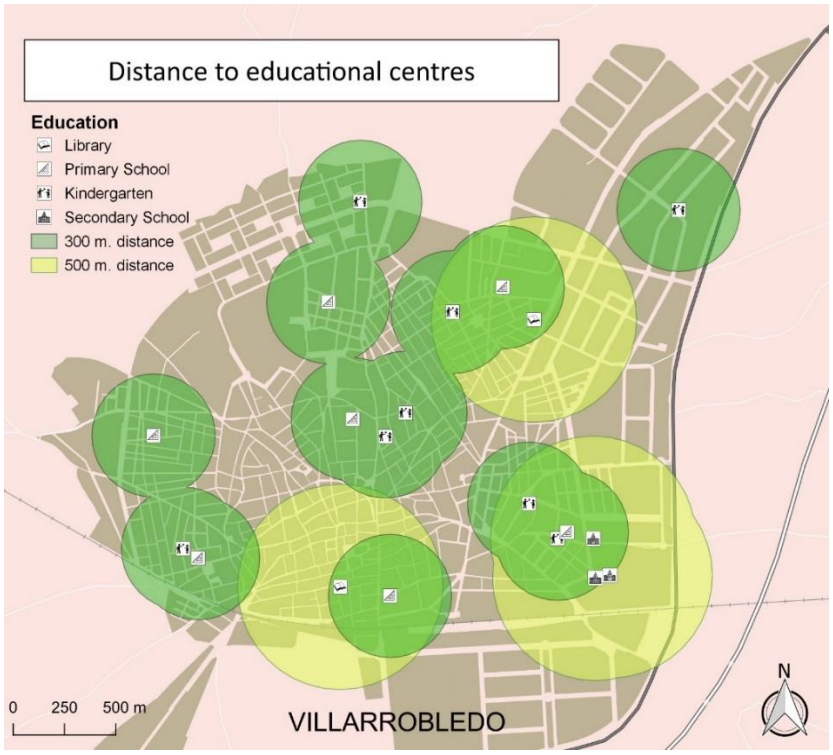
Q35 Did you fill in the previous survey?

- Yes
- No

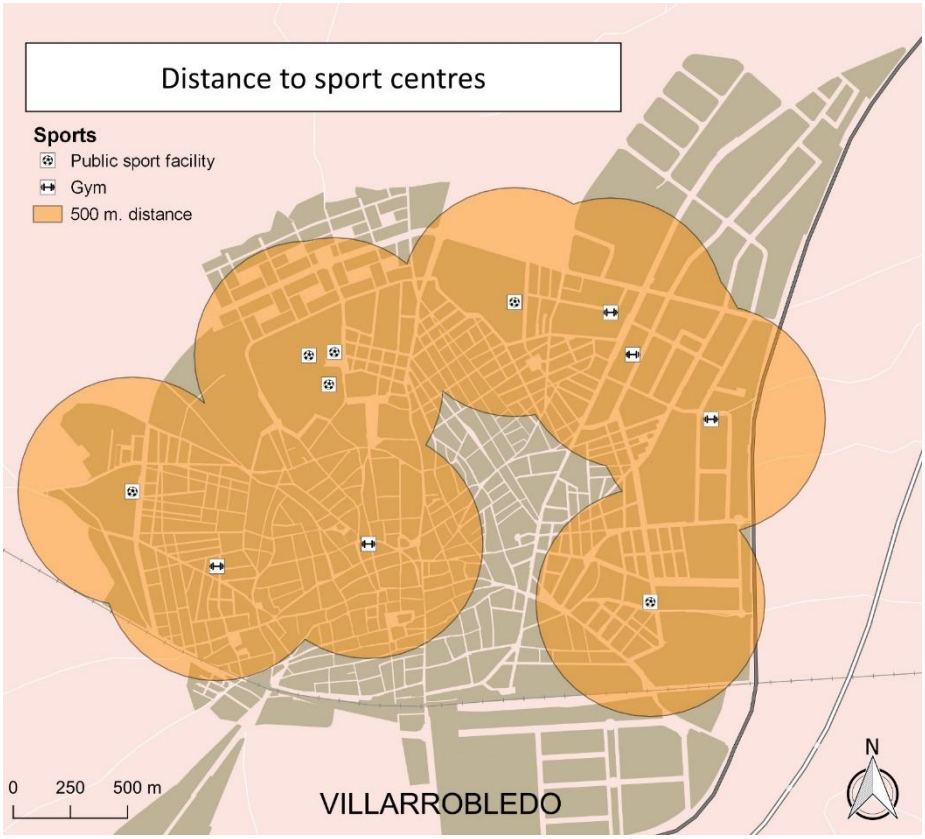
End of Block: Demographics

B: Location of current destinations

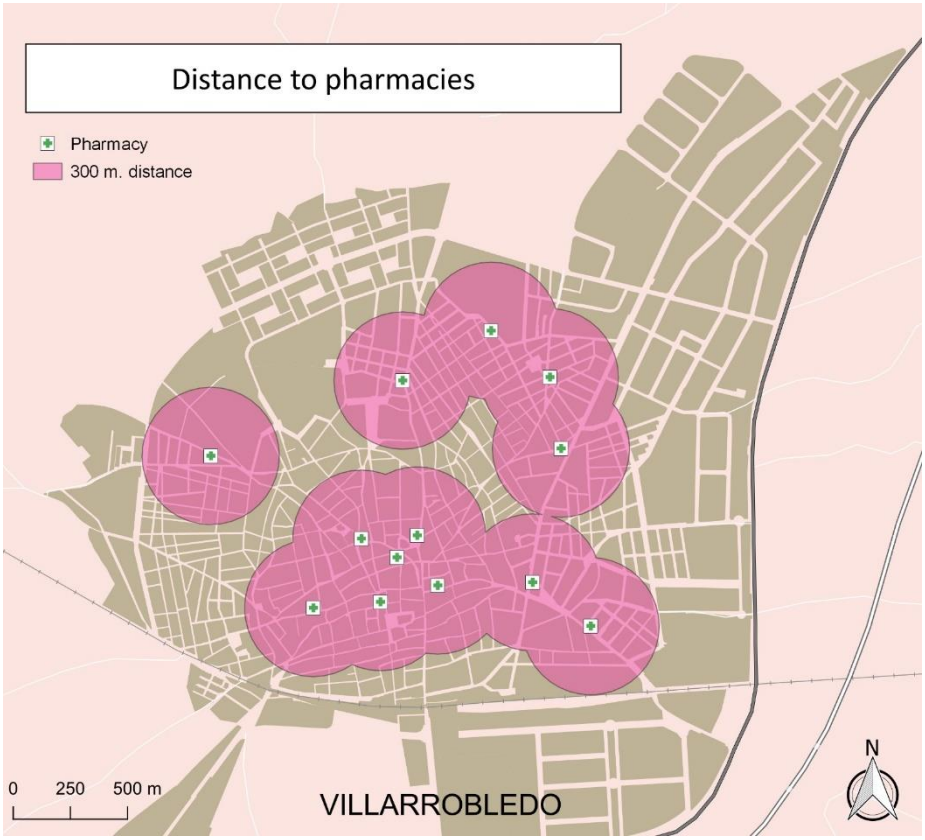
All *supermarkets* are located in one avenue (that is located near the edge of the city), except from one that is in the city centre. However, *local food stores* are better distributed throughout the city.

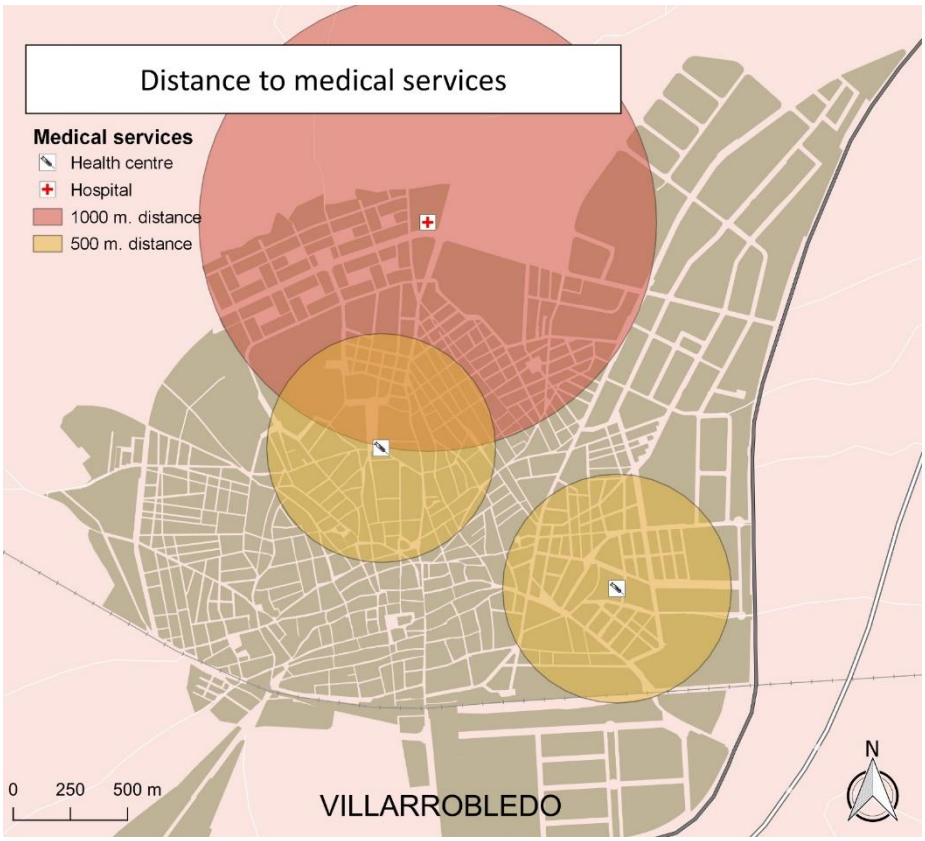


Primary schools and *kindergarten* are well distributed. On the other hand, the three *secondary schools* are located next to each other. Moreover, they are situated in the outskirts of the city, which conditionate the displacements to this destination.



Sports facilities are mainly located at the outer neighbourhoods.





The two public *health services* (medical centre and hospital) are located at the outskirts of the city. This fact hinders the access to these destinations for people with reduced mobility. Regarding *pharmacies*, a little agglomeration can be observed in the city centre. They are relatively well distributed, although citizens from some neighbourhoods have to travel more than 300 meters to reach one of them.

Due to the dispersed distribution of some destinations, people are limited by motorised transport modes for some services such as supermarkets, secondary schools, or medical services.

The new neighbourhood created at the northwest of the city still lacks some close basic services such as food stores or pharmacies

C: Demographic statistical test 1st questionnaire

Age

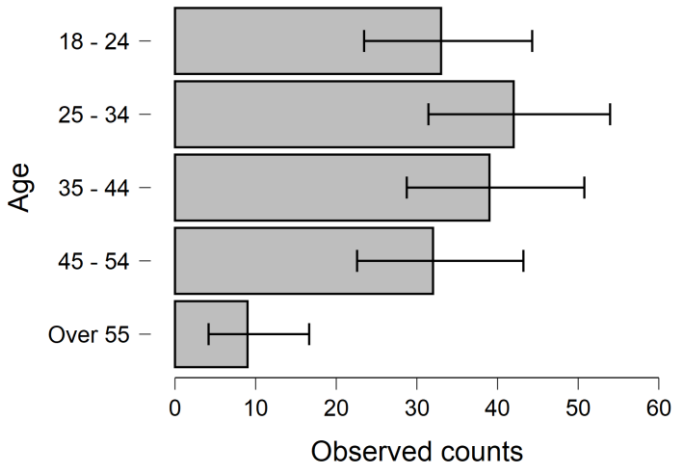
Multinomial Test

	χ^2	df	p
Expected	27.743	4	< .001

Descriptive

			95% Confidence Interval	
Age	Observed	Expected	Lower	Upper
18 - 24	33	20	23.454	44.298
25 - 34	42	31	31.432	53.959
35 - 44	39	37	28.744	50.767
45 - 54	32	37	22.584	43.208
Over 55	9	30	4.168	16.641

Note. Confidence intervals are based on independent binomial distributions.



Gender

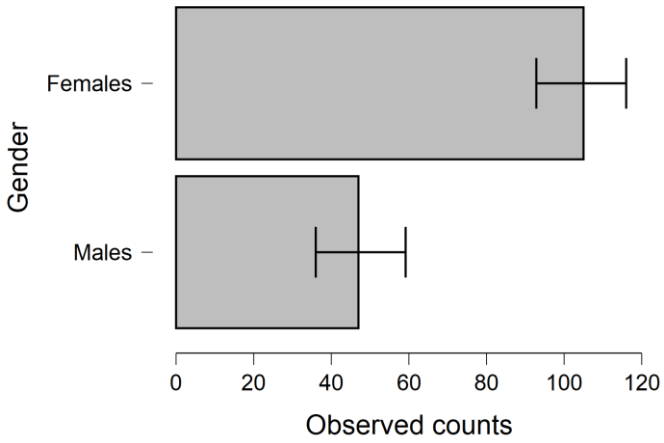
Multinomial Test

	χ^2	df	p
Expected	20.236	1	< .001

Descriptives

			95% Confidence Interval	
Gender	Observed	Expected	Lower	Upper
Females	105	77	92.844	115.999
Males	47	75	36.001	59.156

Note. Confidence intervals are based on independent binomial distributions.



Occupation

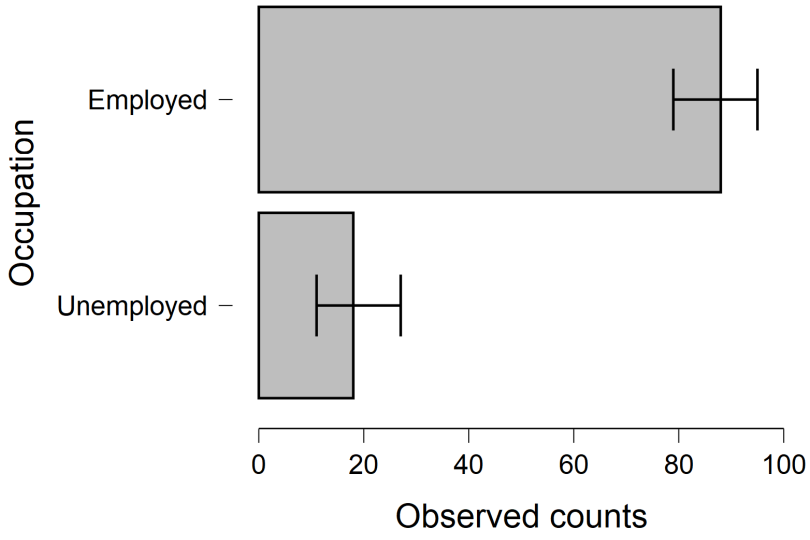
Multinomial Test

	χ^2	df	p
Expected	0.058	1	0.810

Descriptives

			95% Confidence Interval	
Occupation	Observed	Expected	Lower	Upper
Employed	88	87	78.966	94.991
Unemployed	18	19	11.009	27.034

Note. Confidence intervals are based on independent binomial distributions.



D: Full report first questionnaire

The first question was related with the importance that respondents give to the fact of having multiple options or alternatives of a specific service/destination. The results of this question are summarized in the following graph and table:

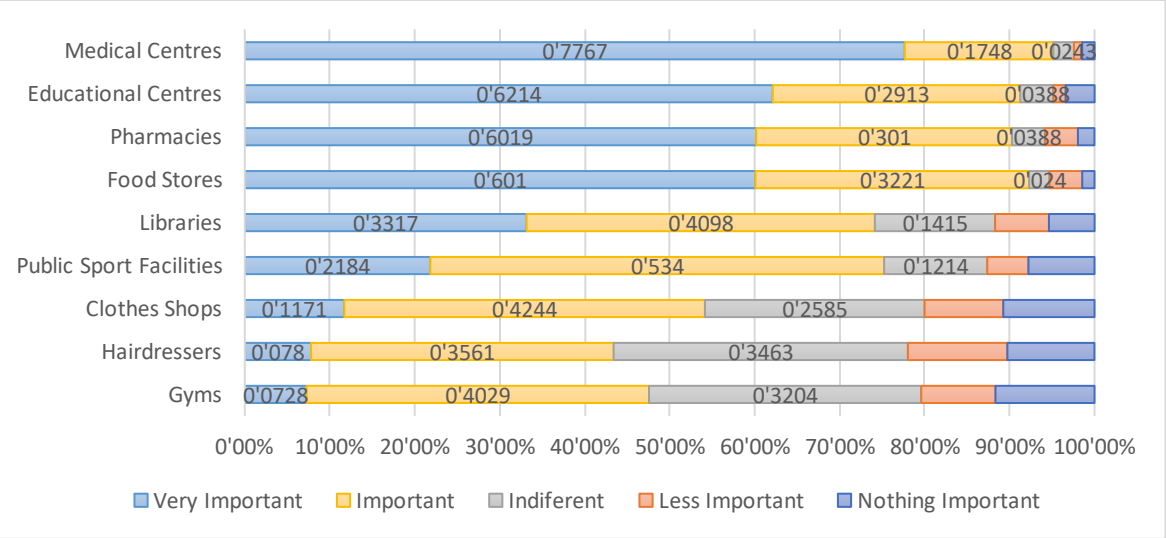


Figure 1: Multiple Options Importance Distribution by destination

Destination	Mean	Std Deviation	Variance
Medical Centres	4.69	0.7	0.5
Food Stores	4.46	0.84	0.7
Educational Centres	4.45	0.91	0.82
Pharmacies	4.43	0.89	0.79
Libraries	3.9	1.1	1.2
Public Sport Facilities	3.77	1.09	1.18
Clothes Shops	3.35	1.14	1.29
Gyms	3.23	1.09	1.2
Hairdressers	3.19	1.08	1.16

Table 1: Multiple Options Importance Statistic Values by destination

It can be observed that almost 80% of the respondents consider that is very important for them to have multiple options of medical centres. Educational centres, pharmacies and food stores are the following options judged to be very important or important, with a very similar mean and distribution. There is a substantial difference between these four destinations and the rest ones. From these results, it seems that respondents answered according to the importance they give to the service itself, but not to the fact of having multiple options of that service as, for example, there is just one public medical centre in the city under study and, however, it is the most valued category with difference. Destinations that are considered essential are perceived to be more valuable than leisure or secondary destinations, and they are also the ones that have registered higher percentages of answers.

Food Stores

From all the people who finished the survey (154), a total of 84 (55%) answered the food stores block. From general behavioural questions, it can be extracted that around 45% of the people do groceries more than once per week, and other 45% between once per 14 days and once per week. Moreover, 67% of the respondents usually go to both, supermarkets and local food stores, while 30% only go to supermarkets. The distribution of the different **local food stores** that people usually go is shown in the following graph:

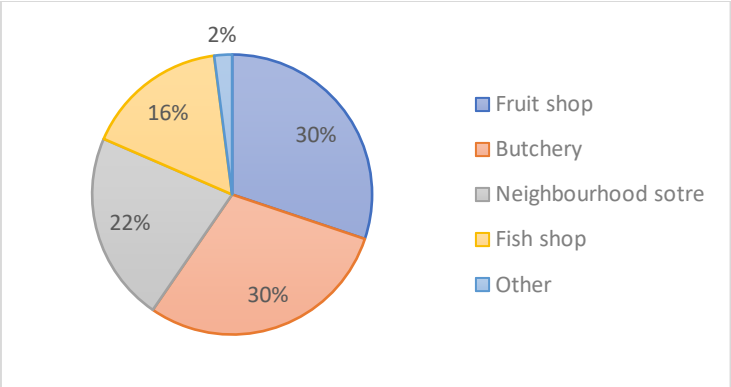


Figure 2: Usage of local food stores

Moving to **supermarkets**, although just a 10% of the people exclusively go to one supermarket, most of the respondents (87%) usually buy the same product in the same store. The following table presents the proportion of the answers about the number of different supermarkets that people go in one month:

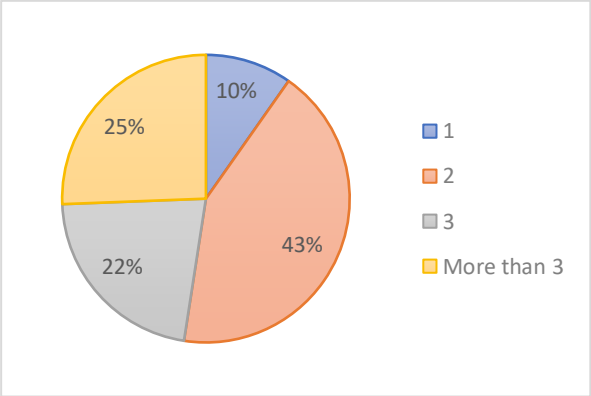


Figure 3: Number of supermarkets visited in a month

Regarding food stores in general, respondents are well satisfied with the proximity to their homes, schedule, and variety of food stores of their city. Almost 80% of the surveyed affirm that they go to the closest food store to their homes. However, more than 65% of these people go by car to the supermarket. This can be because all supermarkets except from one are located at the outskirts of the city. Nevertheless, it can also be possible that people are not aware of their closest one. The next graph shows the factors that are considered most important when choosing a food store:

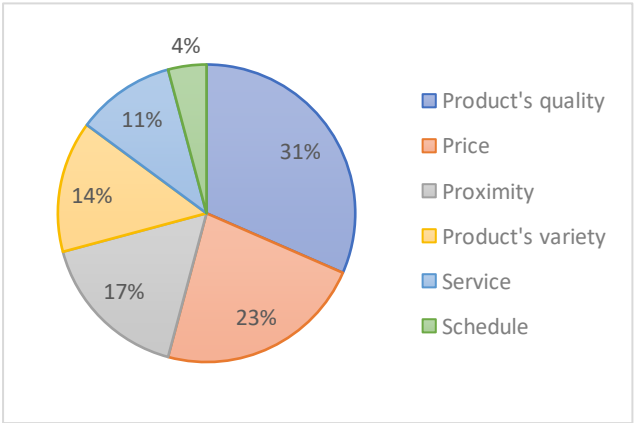


Figure 4: Most valued factors for food stores

Regarding the appreciation of the current number of food stores, 80% of the respondents think that the current number is adequate, while 10% think that there are not enough. These people are from neighbourhoods that are far from supermarkets or that do not have any local food store. The rest believe that there are too many (5%) or they are indifferent (5%).

From an individual point of view, almost 90% of the respondents answered that they value having multiple options to do groceries, and the main reasons are because they want to have alternatives to cope with uncertainty (40%), because they actually use different stores (27%), and because they like variety (21%). On the other hand, from the collective point of view, the percentage of people who appreciate having multiple options is the same, and the main reasons are to ensure that all citizens have one food store close to their homes, and to avoid queues and saturations.

Related to the question about the closure of the only supermarket located in the city centre, the next table summarizes the proportion of each response:

Opinion	%
It affects me because it is my preferred supermarket	32.14
It affects me because I use it sometimes	29.76
It does not affect me because I do not use it	25.00
Other opinion	13.10

Table 2: Distribution of opinions for a supermarket closure

Among the other opinions expressed, the most common one has been about the concern for the elderly or people with reduced mobility because they would not have other options to do groceries by themselves. Other people said that they would be indirectly affected because the supermarket they currently go would be more saturated. On the other hand, few people believe that there are enough alternatives in the city centre to substitute this supermarket.

Finally, some people expressed other opinions in the final open question of the food stores block. For example, one person stated that it is important to give more support to neighbourhood stores and the local market, while other complained about the quality of fresh products in supermarkets.

Health Services

Regarding the block related to health services, which included medical centres, hospitals and pharmacies, 120 (78%) of the surveyed chose it to give their opinion. From this group of respondents, 33% currently make use of any private medical service.

When asked about whether the number of **primary medical services** in the town is adequate, most of the respondents (57.5%) answered they think there are not enough, while others (38.33%) state that the current number is adequate. On the other hand, it does not make any sense to ask whether they think that the number of **hospitals** is adequate in city because there is no possibility to increase the number due to the population size. Instead, it was asked whether the number of specialized services of the current hospital is adequate, and the result has been that the 79% think there are not enough.

The level of satisfaction regarding several attributes of the public medical centre and the hospital is summarized in Figure 5, appreciating that people is less satisfied with the service quality of both facilities.

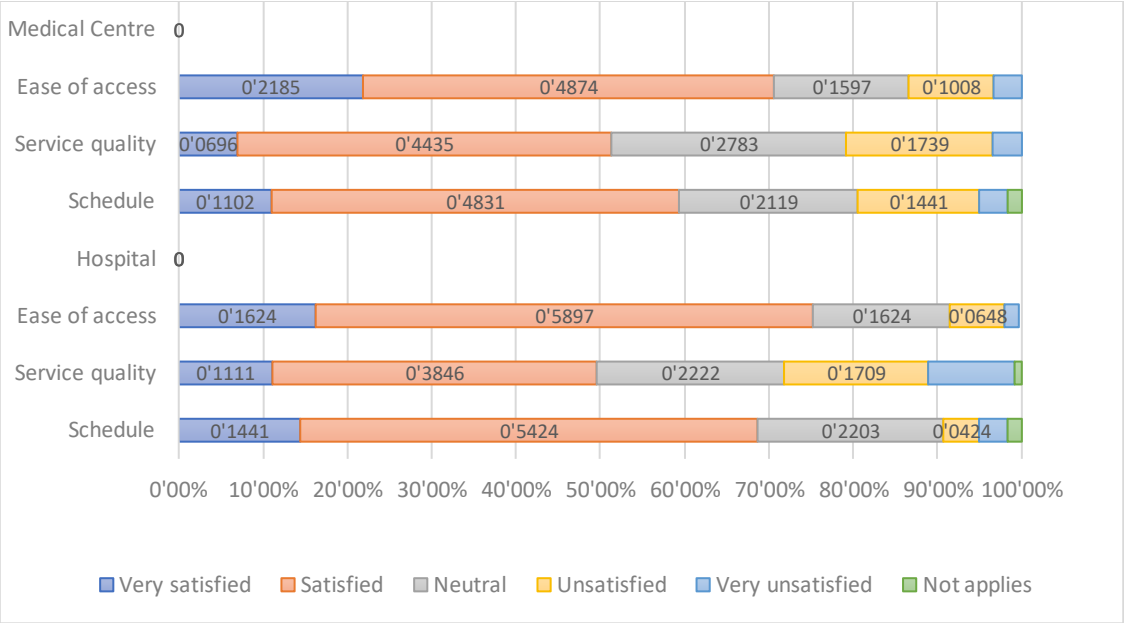


Figure 5: Level of satisfaction with health facilities attributes

As for the question related with the unfinished medical centre, most of the people want it to be finished, some of them in order to have an additional medical centre (62%), and others think that it should have other use (32%). Two respondents specifically indicated that the building should be finished to have another nursing home. Other two, stated that it should be finished only when there are enough funds and after an exhaustive study about citizen's needs. It should be noted for this question, the large number of blank responses, with 25% of the surveyed not answering this question.

It is also important to mention that there have been many additional comments in the open question related to medical services. Around 15 people complained about the long queues in some specialisations of the hospital due to a lack of professionals. Others also criticized the bad management of the hospital. Regarding the medical centre, one of the respondents stated that having an additional medical centre does not mean a better health service for the city and that it could be better to have an improved one that two deficient. Finally, other person also pointed out that socio-medical services should have also been included in the questionnaire.

Moving to **pharmacies**, 80% of the surveyed believe that there are enough pharmacies in the city, whereas 11% think that there are too many (most of these people live in the city centre, which presents the largest number of pharmacies). Moreover, most of the respondents (45%) usually go to the closest pharmacy to their homes, others (25%) use to go to the same pharmacy but not to their closest one. Another 25% answered that they go to more than one pharmacy, and the remaining 5% stated that they usually do not go to this destination.

With respect to which factors are most valued about pharmacies, service and proximity are the two most valued, as the following figure shows.

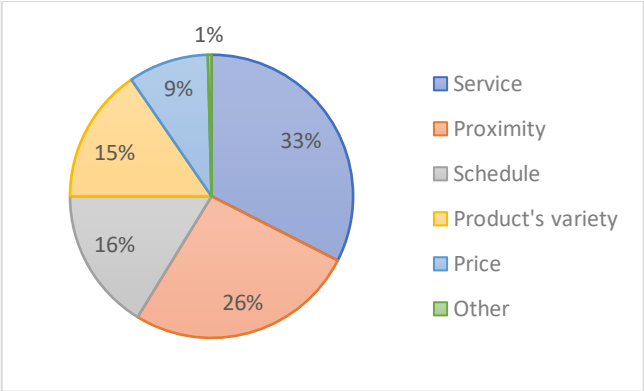


Figure 6: Most valued factors for pharmacies

Regarding whether individuals appreciate having multiple pharmacies available, almost 50% value having alternatives in case the product they need is not available in the pharmacy they usually go, and 29% value having several options in case one pharmacy is closed. Moreover, 12% of the people stated that they actually go to more than one pharmacy and this is why they value having multiple options. The rest of the respondents are indifferent, or they just value the one they go.

From the collective point of view, 90% of the people do appreciate having multiple options to ensure that all citizens have one pharmacy close to their homes and to avoid queues or saturations. Others also mention the importance of having several alternatives to ensure a 24h service.

Education

The education block contained questions about all educational levels that the city offers, from kindergartens to secondary schools, and the library service was included too. A total of 103 people (67%) answered this block.

With respect to **kindergartens**, 54% of the respondents stated that either themselves or their children have gone to a public kindergarten, while 14.5% to a private one. Moreover, 70% of kindergarten users have gone to the closest one to their homes. About the perceptions of the current number of kindergartens, 59% of the surveyed think that there are enough, while 21.5% think that more are needed. Just the 3% believe that there are too many, and the rest are indifferent. Most of the people who thinks that more kindergartens are needed live in the city centre, where there is no kindergarten. Analysing the data in more detail, some differences can be found between users and non-users. The next table shows public, private, and non-users' perceptions about the current number of facilities.

	Public users	Private users	Non-users
Adequate	70.90%	53.30%	40.60%
Too Many	1.80%	6.70%	3.10%
Not enough	21.80%	20.00%	21.90%
Indifferent	5.50%	20.00%	34.40%
	100%	100%	100%

It can be observed that the percentage of people who believe that there are not enough kindergartens is the same for all groups. However, the percentage of people that are indifferent increases form public to private and non-users. Moreover, the group who most considers that there are too many kindergartens are private users, maybe because they are not willing to pay

the service twice (public kindergartens through taxes, and private ones from their pockets). The most interesting finding is that, from the people who believe that more kindergartens are needed, 45% live in the city centre, 18% in Socuellamos neighbourhood, and 13% in the new neighbourhood, which are the areas with less access to public kindergartens.

Moving to **primary schools**, 92% of the surveyed have ever made use of this service, from which 80% have gone to the closest school. Finally, 81% of the respondents believes that the current number of primary schools is adequate, whereas 12% think that there are not enough.

The same percentage of users (92%) applies to **secondary schools**. However, in this case the number of people who thinks that more secondary schools are needed goes up to 23%.

The following figure shows the level of satisfaction related to different attributes of educational centres. It can be observed that the number of children per class is the attribute with which people is less satisfied.

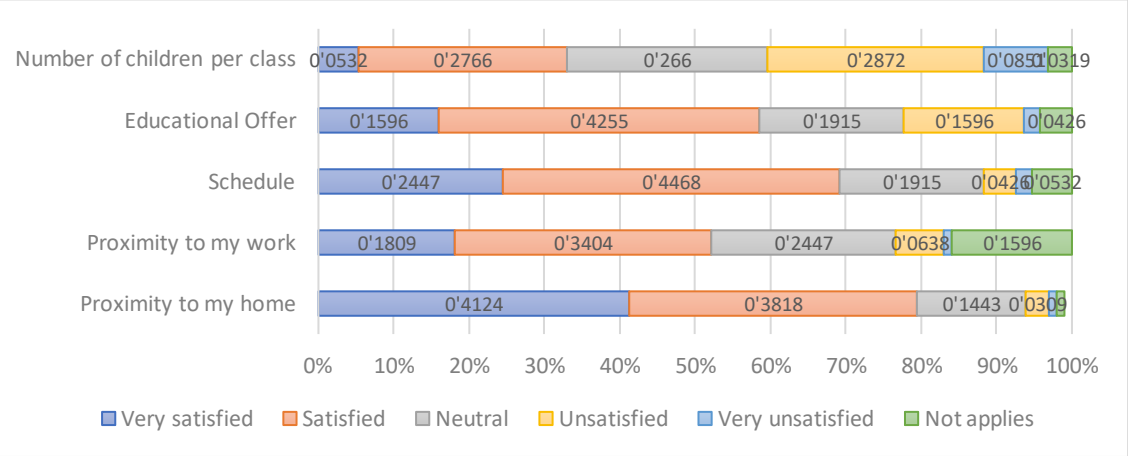


Figure 7: Level of satisfaction with educational centres attributes

As the next figure shows, the two factors that are most appreciated when valuing an educational centre are educational offer and proximity to the family's home.

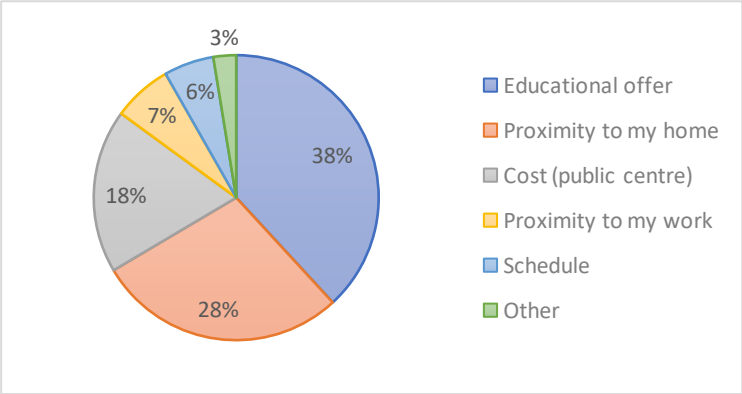


Figure 8: Most valued factors for educational centres

Finally, form an individual point of view, the main reasons why people value having multiple educational centres are: to be able to choose the one that most aligns with their educational preferences (52.6 %), and to have alternative options in case an unexpected event or personal problem occurs with their child (33%). The rest of the respondents are indifferent or do not care because they do not have children. One person added another reason related with the case that the family moves. On the other hand, thinking about the community, almost everyone appreciates having multiple educational centres available either to ensure that everyone has

one close to his/her home or to reduce the number of children per class (saturation). However, as one of the respondents properly pointed out, increasing the number of centres does not necessarily translate into less children per class because this issue is regulated by the central government.

From the 103 respondents of this block, 57% make use of one of the two **libraries** of the city, from which only 58% go to the closest one. Although most of the surveyed (62%) believe that the current number is adequate, there is a significant percentage (32%) which consider that there are not enough. The people who belong to this last group are mainly young people, aged between 18 and 24.

The main reason why individuals value having multiple libraries is to have an alternative in case one is closed. Other people do not consider that having multiple libraries is important because they just make use of one, do not make use at all, or are simply indifferent. From a collective point of view, people mostly value having more than one library to avoid saturations and to ensure that everyone has one close to their homes. One of the respondents also added that they enrich the culture of the city. There are also people who think that this destination is not a primary service and that maintaining several libraries would imply more taxes.

As one of the facts discovered during the preliminary research has been the high number of complains about libraries schedule, a specific question was asked to library users in order to assess the level of satisfaction about the schedule. The next table shows the results:

Level of satisfaction	Very satisfied	Satisfied	Neutral	Unsatisfied	Very unsatisfied
% of responses	18.64%	15.25%	32.20%	23.73%	10.17%

Table 3: Level of satisfaction with the library schedule

It should be noted, that most of the people who are unsatisfied or very unsatisfied with the libraries schedule are young people (between 18 and 34), who are the most regular users. Some of the additional comments that people left related to schedules are that they should be extended or adapted according to the specific needs in different periods of the year because during the exam period they are saturated, and in other periods they are empty. There are also some complains about the reduced variety of the books available.

Sports

The sports block was divided into two groups, public sport facilities and private ones. A total of 60 people answered this block. Around 75% of the respondents affirm to make use of any **public sport facility**, and the next figure shows the most used ones.

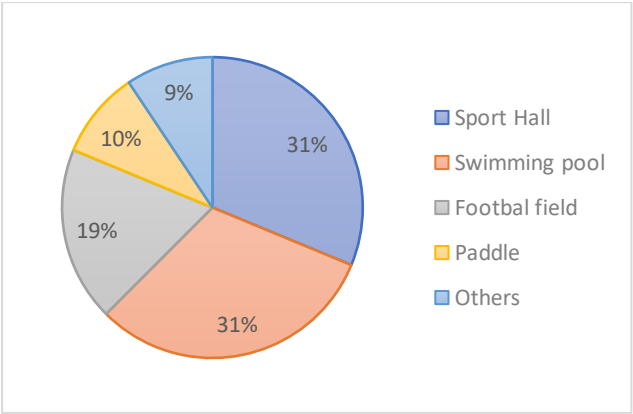


Figure 9: Usage of public sport facilities

When asked about the perceptions of the current number of sport facilities, 42% of the surveyed answered that they think it is adequate, while 13% believe that there are too many, and 12% that there are not enough. The main reason why people appreciate having multiple alternatives is to be able to choose the ones that best suits their sport preferences (62%), followed by having other options in case one is closed (22%). From the collective point of view, almost everyone value having multiple options. However, one respondent indicates that the opening hours should be adapted to the demand to avoid unnecessary maintenance costs. Others also complain about the current state of the facilities because some of them are in deficient conditions.

Regarding **private sport facilities**, the questionnaire has focused on gyms. The number of users of private facilities is very similar to public ones (73.33%). From the people who are gym users, 55% have ever changed the gym they go, being the principal motive, the quality of the service offered by the competence. There is a 70% of the respondents who believe that the current number of gyms is adequate, 15% that there are too many, and 5% that more are needed. The factors most valued when choosing a gym are represented in the next figure.

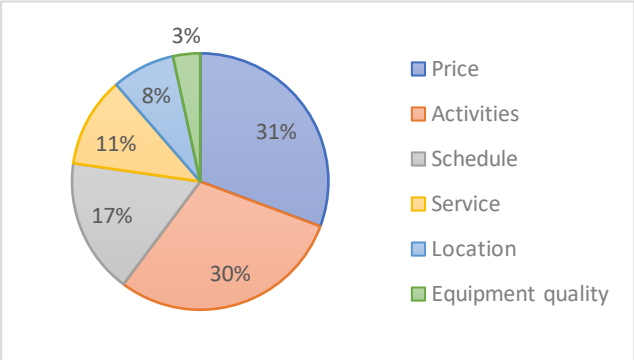


Figure 10: Most value factors for gyms

Around 80% of the people individually value having several gyms and the main reason is because they want to be able to choose the one that best aligns with their sport preferences. Other common reason is because maybe in the future they want to try new things or activities. From the collective point of view, the main reason is to promote sports among citizens.

Other services

The last block comprised questions about hairdressers and clothes shops. It has been the block with less answers, less than 30% of the respondents have chosen this block.

With respect to **hairdressers**, 70.5% of the surveyed affirmed to always go to the same hairdresser. Moreover, 52% believe that the current number of hairdressers is adequate, 23% that there are too many, and 20% of the people are indifferent. The factors most valued by hairdresser users are summarized in the following figure.

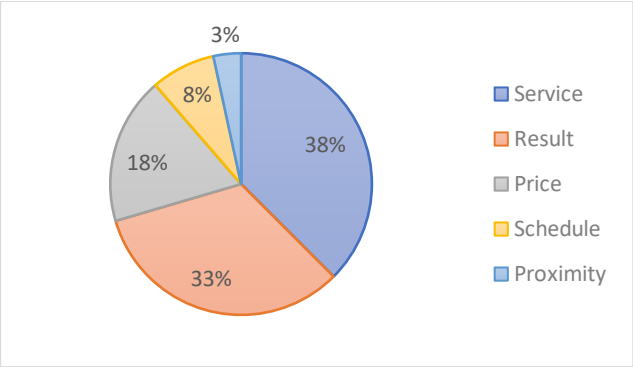


Figure 11: Most valued factors for hairdressers

The total percentage of people who value having multiple alternatives is 65%, and the main reason is to be able to choose the one that best suits their style preferences. There is a 17% that just cares about the hairdresser they go, an 11% that is indifferent, and a 5% that do not make use of this service. Thinking about the community, there are more people who appreciate having multiple options than individually, and some respondents stated that, although they do not make use of this service, they understand that there are people who may need it and want them to have good options.

Regarding **clothes shops**, there is just a 5% that always buy their clothes in the city. The 25% of the respondent state that they buy clothes in the city most of the times, while 52% just sometimes, and the rest (18%) affirmed that they never do shopping in the city. Moreover, 75% of the people who buy clothes in the city go always to the same shops, and most of them go shopping less than once per month.

Just 27% of the respondents believe that the current number of shops is adequate, and more than 55% think that there are not enough. Moreover, people are not only disgusted with the number of shops, but also with the variety, as only 25% of the surveyed believe that the city offers varied options. The two factors that people value most of a clothing store are price and variety, as Figure 12 shows.

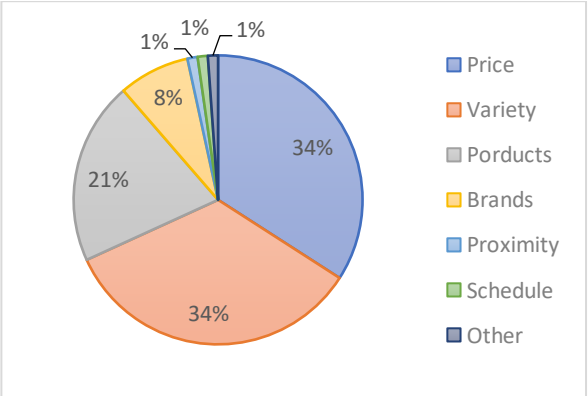


Figure 12: Most valued factors for clothes shops

The percentage of people who value having multiple alternatives is smaller than in the rest of destinations, being 60%. The main reason why people appreciate having several clothing shops is because they like variety and they want to find the one that best suits their fashion tastes. There is a 20% of the respondents who do not care about the number of this destination because they go shopping in another city or online. From the collective point of view, many people stated that they would like to have more options to avoid travelling to other cities. Others would like to have more variety, in part to avoid that everyone wears the same clothes.

Mobility

At the end of the questionnaire, there was a question asking the mode of transport that people most frequently use to move through de city. The next figure shows the results to this question.

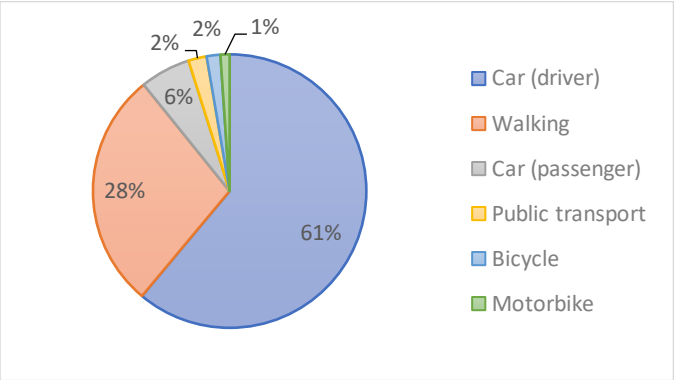


Figure 13: Most frequent mode of transport

It is not very surprising that 67% (61% drivers and 6% passengers) of the people use the car to move around this city because of its relatively large extension, the dispersed distribution of some destinations, and some purchasing patterns of the population revealed in the questionnaire. Moreover, the city does not provide the necessary infrastructure to move safely around the city by bicycle, and public transport services are very limited. It is relevant to mention that this percentage changes for each type of destination, as there are destinations to which people even use more the car, and others to which most of the people go walking. Figure 14 summarizes the most frequent mode of transport used for each type of destination.

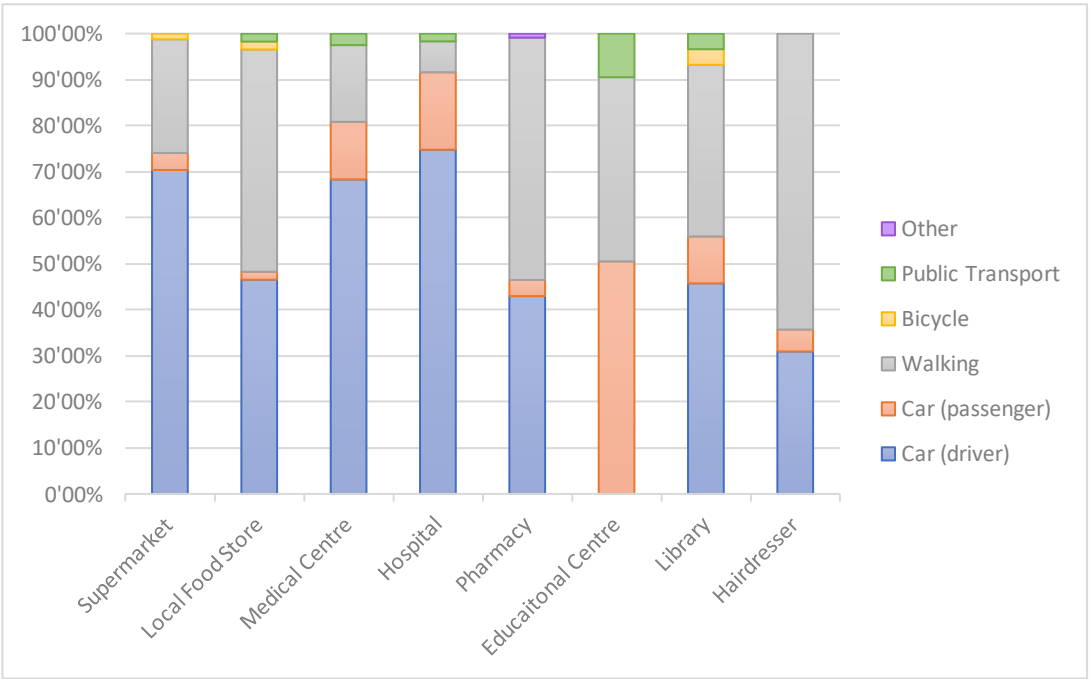


Figure 14: Mode of transport distribution by destination

It can be observed that people are very dependent on the car to go to the medical centre or to the hospital. Moreover, the car is the most used transport mode to go to the supermarket, with more than 70%. This percentage is decreased for libraries, educational centres, pharmacies, and local food stores, but still around half of the people use the car to go to these destinations. Finally, the destination to which most people go walking is hairdressers.

E: Demographic statistical test 2nd questionnaire

Age

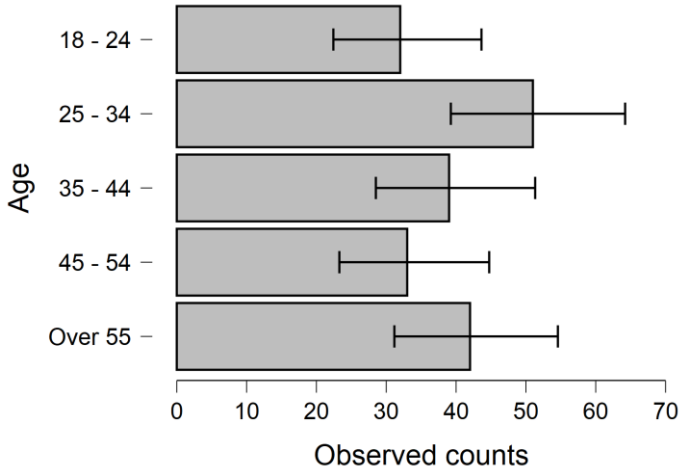
Multinomial Test

	χ^2	df	p
Expected	11.702	4	0.020

Descriptives

			95% Confidence Interval	
Age	Observed	Expected	Lower	Upper
18 - 24	32	25	22.426	43.636
25 - 34	51	39	39.249	64.210
35 - 44	39	47	28.511	51.326
45 - 54	33	48	23.286	44.744
Over 55	42	38	31.162	54.580

Note. Confidence intervals are based on independent binomial distributions.



Gender

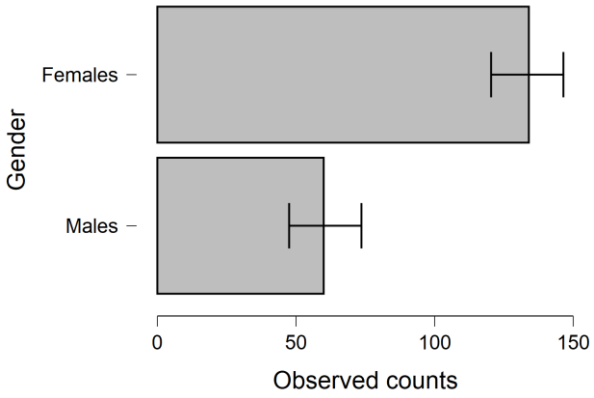
Multinomial Test

	χ^2	df	p
Expected	25.808	1	< .001

Descriptives

			95% Confidence Interval	
Gender	Observed	Expected	Lower	Upper
Females	134	99	120.385	146.463
Males	60	95	47.537	73.615

Note. Confidence intervals are based on independent binomial distributions.



Occupation

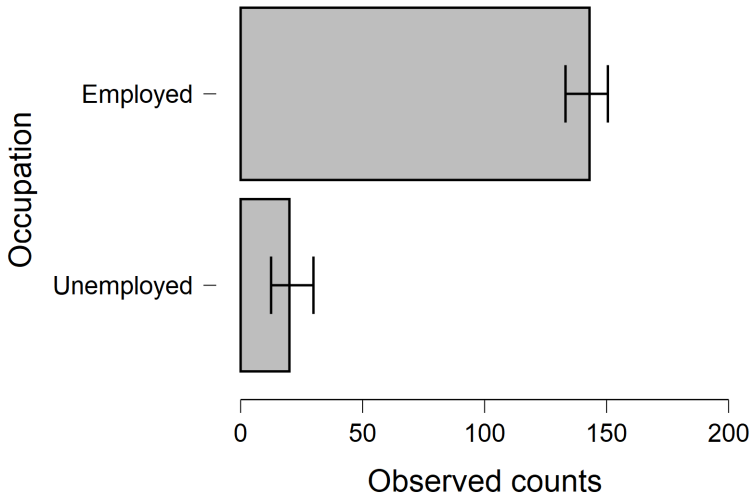
Multinomial Test

	χ^2	df	p
Expected	3.487	1	0.062

Descriptives

			95% Confidence Interval	
Occupation	Observed	Expected: Expected	Lower	Upper
Employed	143	134	133.151	150.517
Unemployed	20	29	12.483	29.849

Note. Confidence intervals are based on independent binomial distributions.

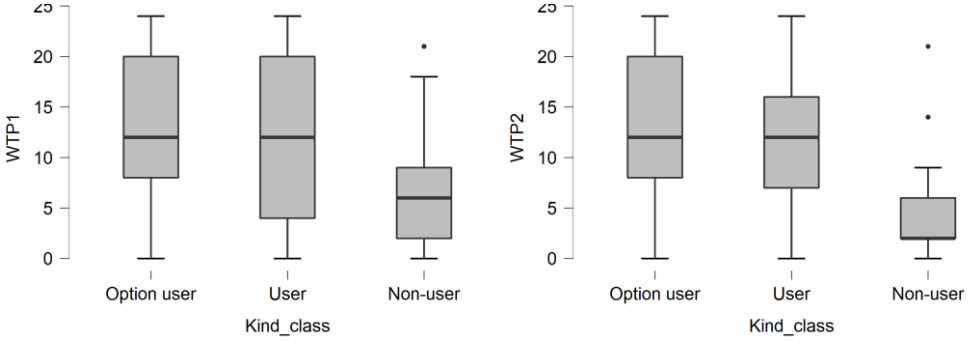


F: Kindergartens' statistical tests

User group

Descriptive Statistics

	WTP1			WTP2		
	Option user	User	Non-user	Option user	User	Non-user
Valid	39	59	41	41	52	36
Missing	14	13	31	12	20	36
Mean	13.949	11.864	6.366	11.805	10.769	4.667
Median	12.000	12.000	6.000	12.000	12.000	2.000
Std. Deviation	6.147	8.068	6.324	7.319	6.975	4.598
Minimum	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	24.000	24.000	21.000	24.000	24.000	21.000



- *Scenario 1*

Kruskal-Wallis Test

Factor	Statistic	df	p
User group	20.908	2	< .001

Dunn's Post Hoc Comparisons – User group

Comparison	z	W_i	W_j	p	p_{bonf}	p_{holm}
Option user - User	1.429	86.615	74.831	0.076	0.229	0.076
Option user - Non-user	4.406	86.615	47.244	< .001	< .001	< .001
User - Non-user	3.396	74.831	47.244	< .001	0.001	< .001

- *Scenario 2*

Kruskal-Wallis Test

Factor	Statistic	df	p
User group	23.567	2	< .001

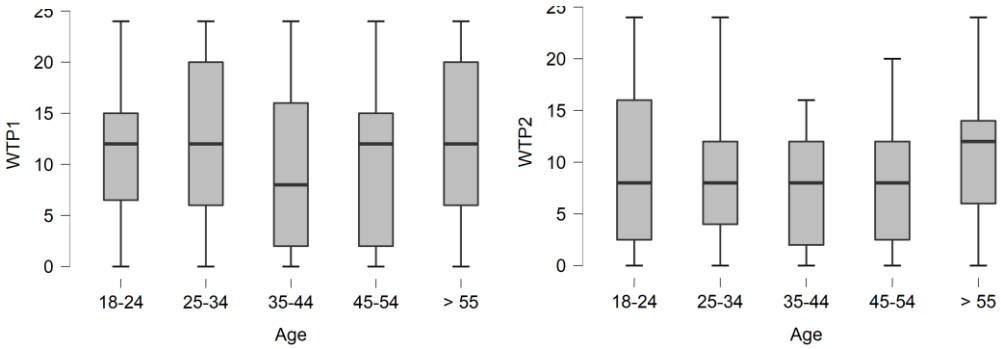
Dunn's Post Hoc Comparisons – User group

Comparison	z	W_i	W_j	p	p_{bonf}	p_{holm}
Option user - User	0.537	77.122	72.962	0.295	0.886	0.295
Option user - Non-user	4.421	77.122	39.694	< .001	< .001	< .001
User - Non-user	4.140	72.962	39.694	< .001	< .001	< .001

Age

Descriptive Statistics

	WTP1					WTP2				
	18-24	**25-34**	**35-44**	**45-54**	**> 55**	**18-24**	**25-34**	**35-44**	**45-54**	**> 55**
Valid	22	35	28	23	31	22	37	24	18	28
Missing	10	16	11	10	11	10	14	15	15	14
Mean	10.455	11.486	9.250	9.913	12.452	9.364	9.378	7.208	9.056	11.536
Median	12.000	12.000	8.000	12.000	12.000	8.000	8.000	8.000	8.000	12.000
Std. Deviation	6.262	7.957	8.072	7.757	7.792	8.290	7.300	5.603	6.760	7.198
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	24.000	24.000	24.000	24.000	24.000	24.000	24.000	16.000	20.000	24.000



- *Scenario* 1

Kruskal-Wallis Test

Factor	Statistic	df	p
Age	2.979	4	0.561

- *Scenario* 2

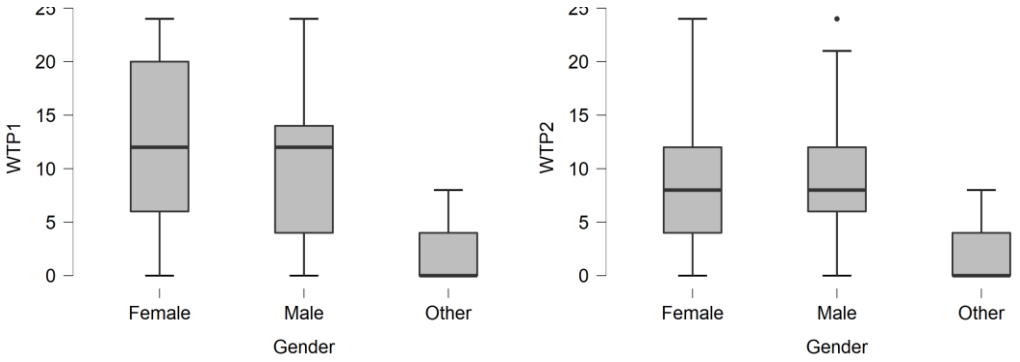
Kruskal-Wallis Test

Factor	Statistic	df	p
Age	4.216	4	0.378

Gender

Descriptive Statistics

	WTP1			WTP2		
	Female	**Male**	**Other**	**Female**	**Male**	**Other**
Valid	91	45	3	85	41	3
Missing	43	15	0	49	19	0
Mean	11.319	10.378	2.667	9.200	10.293	2.667
Median	12.000	12.000	0.000	8.000	8.000	0.000
Std. Deviation	7.635	7.614	4.619	7.017	7.339	4.619
Minimum	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	24.000	24.000	8.000	24.000	24.000	8.000



- *Scenario 1*

Kruskal-Wallis Test

Factor	Statistic	df	p
Gender	4.163	2	0.125

- *Scenario 2*

Kruskal-Wallis Test

Factor	Statistic	df	p
Gender	3.867	2	0.145

Occupation

Descriptive Statistics

	WTP1						
	Full-time empl.	Other	Part-time empl.	Retired	Self-employed	Student	Unemployed
Valid	69	8	19	7	15	9	12
Missing	23	4	9	1	8	5	8
Mean	11.681	10.750	9.263	10.571	12.200	9.778	7.667
Median	12.000	10.000	8.000	12.000	12.000	12.000	7.000
Std. Deviation	7.716	8.876	8.306	7.721	7.580	5.239	7.328
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	24.000	24.000	24.000	20.000	24.000	16.000	20.000

Descriptive Statistics

	WTP2						
	Full-time empl.	Other	Part-time empl.	Retired	Self-employed	Student	Unemployed
Valid	63	7	16	6	15	10	12
Missing	29	5	12	2	8	4	8
Mean	9.413	7.571	8.500	9.667	13.333	9.400	6.500
Median	8.000	9.000	8.000	10.000	14.000	8.000	5.000
Std. Deviation	6.874	5.412	8.050	6.743	7.118	8.435	6.613
Minimum	0.000	0.000	0.000	0.000	2.000	0.000	0.000
Maximum	24.000	12.000	24.000	20.000	24.000	24.000	20.000

- *Scenario 1*

Kruskal-Wallis Test

Factor	Statistic	df	p
Occupation	4.627	6	0.592

- *Scenario 2*

Kruskal-Wallis Test

Factor	Statistic	df	p
Occupation	7.584	6	0.270

Income

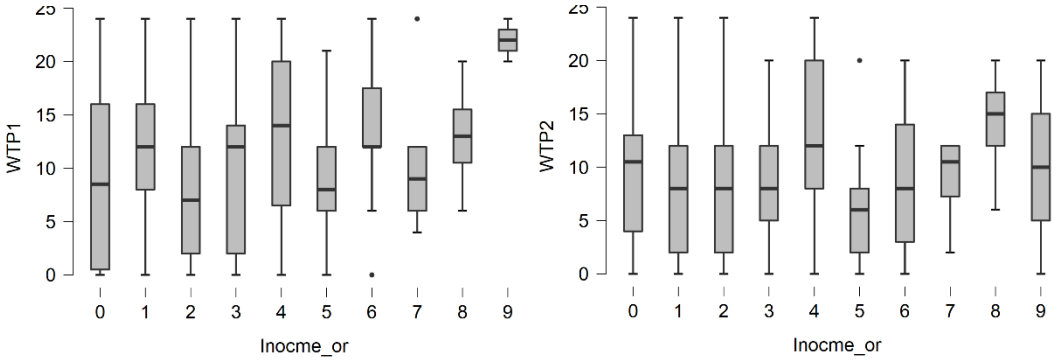
Descriptive Statistics

	WTP1									
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Valid	30	19	16	21	18	13	10	6	4	2
Missing	16	10	10	10	6	2	4	0	0	0
Mean	9.667	11.263	8.250	10.000	13.333	9.462	13.600	10.667	13.000	22.000
Median	8.500	12.000	7.000	12.000	14.000	8.000	12.000	9.000	13.000	22.000
Std. Deviation	8.401	7.030	7.225	7.849	8.167	6.226	7.412	7.339	5.774	2.828
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.000	6.000	20.000
Maximum	24.000	24.000	24.000	24.000	24.000	21.000	24.000	24.000	20.000	24.000

Descriptive Statistics

	WTP2									
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Valid	32	19	16	15	17	13	7	4	4	2
Missing	14	10	10	16	7	2	7	2	0	0
Mean	9.781	7.789	8.750	9.333	12.353	6.769	8.857	8.750	14.000	10.000
Median	10.500	8.000	8.000	8.000	12.000	6.000	8.000	10.500	15.000	10.000
Std. Deviation	7.474	7.480	7.895	6.172	7.141	5.570	7.647	4.717	5.888	14.142
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.000	6.000	0.000
Maximum	24.000	24.000	24.000	20.000	24.000	20.000	20.000	12.000	20.000	20.000

0 → I don't know/prefer to answer
1 → <5,000€
2 → 5,000-10,000€
3 → 10,000-15,000€
4 → 15,000-20,000€
5 → 20,000-25,000€
6 → 25,000-30,000€
7 → 30,000-35,000€
8 → 35,000-40,000€
9 → >40,000€



- *Scenario 1*

Kruskal-Wallis Test

Factor	Statistic	df	p
Income	10.601	9	0.304

- *Scenario 2*

Kruskal-Wallis Test

Factor	Statistic	df	p
Income	8.377	9	0.497

Neighbourhood

Descriptive Statistics

	WTP1							
	Asturias	**Centro**	**Juan Valero**	**I'm not sure**	**Nueva Villa**	**Pintores**	**San Anton**	**Socuellamos**
Valid	12	70	7	8	9	3	9	21
Missing	8	32	2	3	4	1	4	4
Mean	6.000	10.671	9.714	15.250	13.111	7.333	10.889	12.286
Median	6.000	12.000	12.000	16.000	16.000	4.000	12.000	12.000
Std. Deviation	5.784	7.734	6.473	6.585	8.358	7.572	9.333	7.329
Minimum	0.000	0.000	0.000	6.000	2.000	2.000	0.000	0.000
Maximum	16.000	24.000	20.000	24.000	21.000	16.000	24.000	24.000

Descriptive Statistics

	WTP2							
	Asturias	Centro	Juan Valero	I'm not sure	Nueva Villa	Pintores	San Anton	Socuellamos
Valid	14	61	7	7	10	1	10	19
Missing	6	41	2	4	3	3	3	6
Mean	7.643	9.377	9.714	15.429	7.300	4.000	8.800	10.105
Median	6.000	8.000	12.000	12.000	5.000	4.000	8.000	8.000
Std. Deviation	7.662	6.892	6.473	7.091	6.832	NaN	7.554	7.527
Minimum	0.000	0.000	0.000	8.000	0.000	4.000	0.000	0.000
Maximum	21.000	24.000	20.000	24.000	20.000	4.000	24.000	24.000

- Scenario 1

Kruskal-Wallis Test

Factor	Statistic	df	p
Neighbourhood	9.420	7	0.224

- Scenario 2

Not possible to perform the test because the number of observations is < 2 in WTP2 after grouping on Neighbourhood

G: Health centres' statistical test

User group

Descriptive Statistics

	WTP		
	Non-user	**Option user**	**User**
Valid	42	51	44
Missing	23	24	19
Mean	41.429	54.510	41.591
Median	20.000	50.000	20.000
Std. Deviation	41.353	43.003	41.200
Minimum	0.000	0.000	0.000
Maximum	180.000	180.000	180.000

*Missing values=protest answers

Kruskal-Wallis Test

Factor	Statistic	df	p
User group	5.593	2	0.061

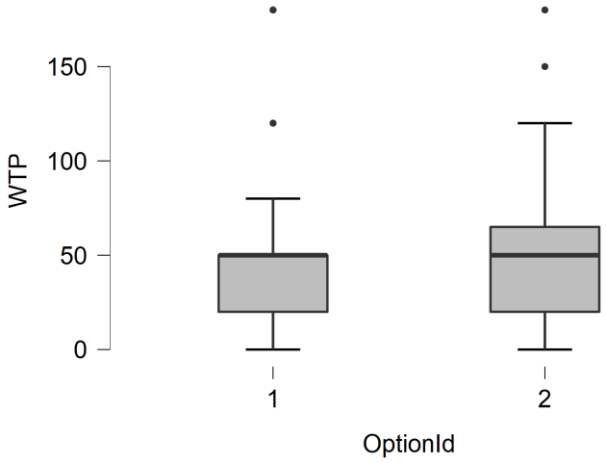
Option

Option 1: expand schedules current health centre
Option 2: Finish the second health centre

Descriptive Statistics

	WTP	
	1	**2**
Valid	82	47
Missing	49	11
Mean	45.366	54.043
Median	50.000	50.000
Std. Deviation	41.431	43.472
Minimum	0.000	0.000
Maximum	180.000	180.000

Note. Excluded 14 rows from the analysis that correspond to the missing values of the split-by variable OptionId



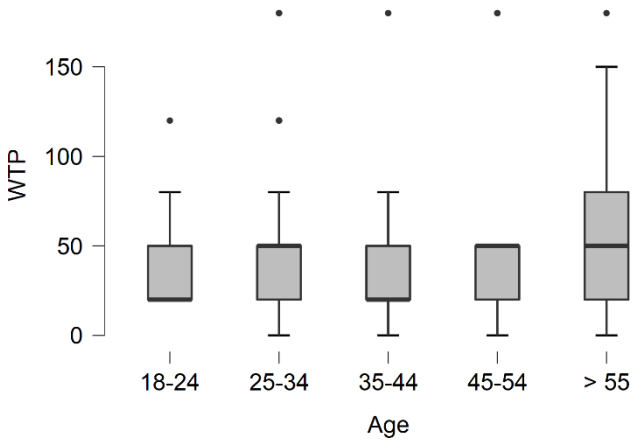
Kruskal-Wallis Test

Factor	Statistic	df	p
Option	1.762	1	0.184

Age

Descriptive Statistics

	WTP				
	18-24	**25-34**	**35-44**	**45-54**	**> 55**
Valid	28	37	18	18	36
Missing	4	14	22	16	10
Mean	39.643	51.351	39.444	47.778	49.167
Median	20.000	50.000	20.000	50.000	50.000
Std. Deviation	25.889	44.482	43.450	51.854	44.873
Minimum	20.000	0.000	0.000	0.000	0.000
Maximum	120.000	180.000	180.000	180.000	180.000



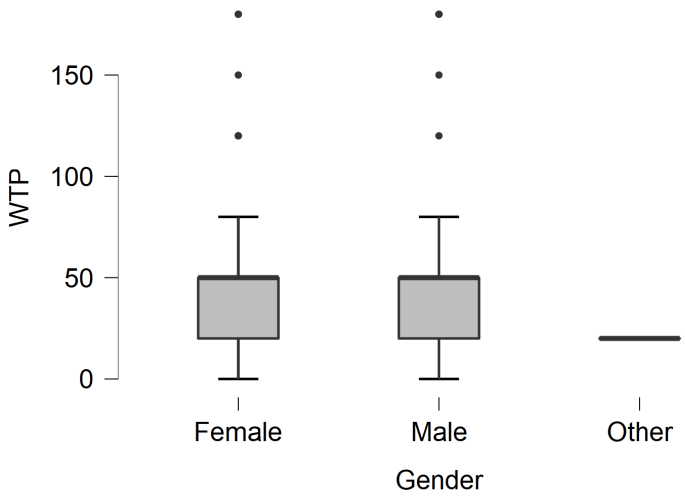
Kruskal-Wallis Test

Factor	Statistic	df	p
Age	1.723	4	0.787

Gender

Descriptive Statistics

	WTP		
	Female	**Male**	**Other**
Valid	90	45	2
Missing	48	17	1
Mean	45.000	50.222	20.000
Median	50.000	50.000	20.000
Std. Deviation	39.782	47.169	0.000
Minimum	0.000	0.000	20.000
Maximum	180.000	180.000	20.000



Kruskal-Wallis Test

Factor	Statistic	df	p
Gender	0.148	1	0.700

Occupation

Descriptive Statistics

	WTP						
	Full-time empl	**Other**	**Part-time empl**	**Retired**	**Self-employed**	**Student**	**Unemployed**
Valid	61	7	17	7	19	12	12
Missing	31	4	12	1	8	1	8
Mean	53.443	34.286	32.941	30.000	57.368	42.500	36.667
Median	50.000	20.000	20.000	20.000	20.000	50.000	50.000
Std. Deviation	46.400	26.992	31.178	26.458	58.485	22.613	24.246
Minimum	0.000	0.000	0.000	0.000	0.000	20.000	0.000
Maximum	180.000	80.000	120.000	80.000	180.000	80.000	80.000

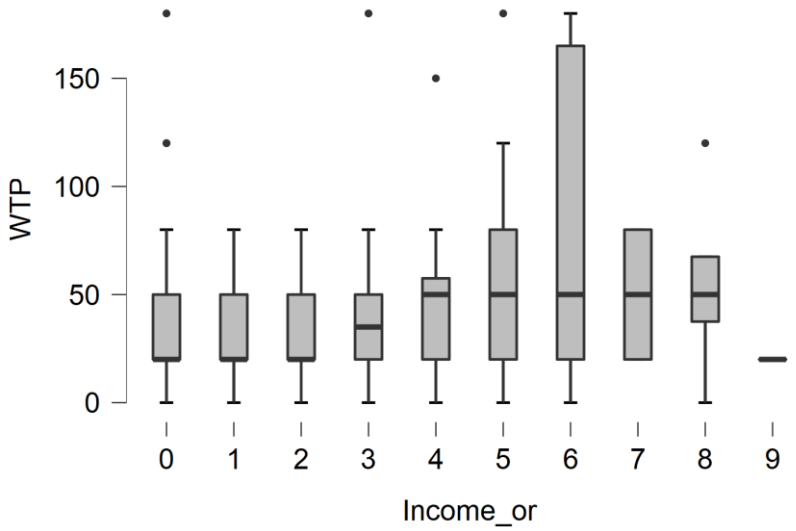
Kruskal-Wallis Test

Factor	Statistic	df	p
Occupation	5.559	6	0.474

Income

Descriptive Statistics

	WTP									
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Valid	29	24	16	16	16	13	11	5	4	1
Missing	18	4	11	16	8	2	4	1	0	1
Mean	42.069	33.750	34.375	43.750	48.125	61.538	88.182	50.000	55.000	20.000
Median	20.000	20.000	20.000	35.000	50.000	50.000	50.000	50.000	50.000	20.000
Std. Deviation	40.389	24.462	24.757	41.613	37.633	48.278	74.002	30.000	49.329	NaN
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.000	0.000	20.000
Maximum	180.000	80.000	80.000	180.000	150.000	180.000	180.000	80.000	120.000	20.000



Kruskal-Wallis Test

Factor	Statistic	df	p
Income	8.367	8	0.398

Neighbourhood

Descriptive Statistics

	WTP							
	Asturias	**Centro**	**Juan Valero**	**I'm not sure**	**Nueva Villa**	**Pintores**	**San Anton**	**Socuellamos**
Valid	14	65	7	7	8	4	10	19
Missing	5	36	2	4	5	1	5	6
Mean	36.429	46.769	30.000	38.571	78.750	30.000	62.000	46.842
Std. Deviation	39.342	39.848	20.000	31.848	50.551	34.641	66.131	42.302
Minimum	0.000	0.000	0.000	0.000	20.000	0.000	0.000	0.000
Maximum	150.000	180.000	50.000	80.000	180.000	80.000	180.000	180.000

Kruskal-Wallis Test

Factor	Statistic	df	p
Neighbourhood	8.372	7	0.301