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Mobility as a function of environmental conditions and sociodemographic differentiation: The case of gender inequality in the Lisbon Metropolitan Area

Condiciones ambientales y diferenciación social en los patrones de movilidad: El caso de las desigualdades de género en el Área Metropolitana de Lisboa

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ABSTRACT

Place determinants and social dimensions interact to produce mobility patterns. The work seeks to measure to what extent the physical and social conditions of the residency place modulate the intensity of mobility particularly in what concerns gender inequalities. To do so, we first present the theoretical framework, which guides our perspective on mobility inequalities and the geographical focus: Lisbon Metropolitan Area (LMA). Secondly, using logistic regression on representative data from a survey to LMA inhabitants we elaborate on the concept of environmental motility and its relationship to various types of inequality. Lastly, we systematize a view on accumulated inequalities examining how local environments may increase the mobilities gender gap.

RESUMEN

Las características sociales y las propias condiciones del lugar condicionan la movilidad espacial. El trabajo analiza en qué medida las variables socioambientales modulan las formas de movilidad en distintos contextos de desigualdad. En primer lugar, se aborda el concepto de desigualdades de movilidad en el territorio sobre el caso del Área Metropolitana de Lisboa (LMA). En segundo lugar, se establecen indicadores para medir la motilidad ambiental y se analiza mediante el

análisis de regresión logística su relación con varios tipos de desigualdad social. Para ello se emplea una amplia encuesta representativa a los habitantes de LMA. Por último, se aborda la cuestión de la interacción y acumulación de desigualdades en el contexto de las condiciones de movilidad y se examina cómo los entornos locales pueden aumentar la brecha de género.

1. INTRODUCTION

The present article examines the relationship that exists between mobility and social inequalities. Places foster more free and flexible relationships, or, on the contrary, more closed and restrictive ones for those who live and move within them. They do so through the material resources they make available, the conditions of security and well-being they provide, and even the symbolic representations associated with them. Nonetheless the impact of the resources and conditions of the spatial structure have is not the same for all social groups.

We seek to measure to what extent the physical and social conditions of the place of residency modulate the intensity of mobility focusing on gender inequalities. The literature has stressed that a greater or lesser capacity for mobility depends on, among other factors, differences in economic resources, education levels, age or gender. The focus on gender is particularly relevant as it has been pointed out to be one most neglected dimensions in the mobilities study and planning (Uteng & Cresswell, 2008; Letherby & Reynolds, 2009), namely in Lisbon (Santos, 2017).

Gender differences intervene by modulating mobility/immobility, for example, through social control - in many places a woman traveling alone or even having a drivers' license continues to be sanctioned. Hanson (2010) notes, from a gender perspective, the importance of considering family positions but also the different characteristics of the environment in a broad sense: the built, the institutional and cultural environment. In other words, mobility practices are also sensitive to the environment, understanding the latter as the totality of opportunities and limitations. These conditions are not equal for all, they differ in function of individuals' positions in the social structure and also in function of their gender.

In this sense, mobility involves a combination of environmental and socio-economic factors and the daily strategies of individuals and families (Camarero & Oliva, 2008). The dialogue that is established at the theoretical level between mobilities and space is particularly visible on the empirical level and particularly intense in contemporary cities.

We need to ask in what ways the physical and social conditions of the place of residency favor or reduce mobility. No universal rule regarding the effect of residential environments on mobility can be established a priori. This is an important question though with contradictory answers. If we think of remote and isolated places where there are few spaces for leisure or shopping, and employment opportunities are

concentrated in the domestic sphere, mobility can be limited, given that there are few places to go. However, the opposite may also be true. The fewer possibilities the environment offers, the greater mobility may be, as a way to overcome the limits and restrictions of place. Both possibilities are not mutually exclusive and each can be true; it depends on who the subject is and what type of place we are talking about.

The area surrounding the residential space is considered to be a decisive factor for less resourceful populations, namely in what concerns accessibility, available facilities and the security of social relations. We use the concept of *environmental motility* to refer to the ways in which the place of residence can potentially increase or reduce mobility. This article seeks specifically to measure to what extent the physical and social conditions of place of residence modulate the mobility daily practices as a function of gender inequalities. We want to analyze the extent to which women's practices of spatial mobility are conditioned by the socio-environmental factors specific to different places of residence in the context of the Lisbon Metropolitan Area (LMA). Where this relationship is confirmed, we can then identify some of the mechanisms that lead to mobility reinforcing social inequalities, with particular emphasis on gender inequalities.

Beyond the critical discussion over which methodological instruments are best for studying mobilities (Merriman, 2014), mobility studies have been failing short in providing understanding of the relationship between social and spatial dynamics, as well as the differentiation between mobility and immobility (Manderscheid, 2014), or between the determination of what is fluid and what is fixed (Jensen, 2009).

We analyze different mobilities together, not just those that are typically analyzed in the literature, such as commuting. It is only in this way that we can examine the effects of environment and gender inequalities beyond the movements motivated by work. While, for example, employment and commuting tend to be a constant for men, women's travels tend to be more diverse. For the latter, employment can differ significantly depending on opportunities for mobility and on family, personal and environmental conditions. In fact, environment not only affects employment related mobility, but mobility in general. Leisure and shopping options as well as a sense of safety can produce notable differences in mobility practices between men and women.

This study is based on data from a survey carried out in 2014 with a representative sample of 1500 residents in the LMA. The work was carried out as part of the LOCALWAYS research project¹. This article is divided into the following sections. In the first, we develop a theoretical systematization that articulates the conceptual

1 Project entitled *Ways of local sustainability: mobility, social capital and inequality* (PTDC/ATP-EUR/5023/2012).

relationship between social inequalities and spatial mobilities. Following this, we present the methodological assumptions that are the foundation of our findings. In the third section we contextualize the mobility practices that are dominant in the Lisbon metropolitan area in terms of the modes and uses of transport. The next section presents the statistical analysis through which we operationalize the concept of environmental motility and its relationship to various types of inequality. Lastly, we systematize the cumulative character of inequalities examining how the gender gap is deepened by the ways that local environment potentially produces mobility.

2. THEORETICAL ANALYSIS: MOBILITIES, INEQUALITIES AND MOTILITY

Sociology has only belatedly recognized the role that spatial position has in the production and reproduction of inequalities. The initial studies of the Human Ecology School referred to processes of residential segregation (Duncan & Duncan, 1957) that were considered to mirror social stratification. These authors saw a simple relationship of mere correspondence between social and spatial processes. Studies in the field of geography -such as Harvey (1989)- incorporated a different reading of space based on the conditions for mobility. Harvey developed the term space-time compression to indicate the relativity of physical distances and how this incorporated social differentiation. The same places are at different distances for different social groups. In the same sense, Sheppard (2002) considered non-Euclidean geographies banishing notions of distance and accessibility for their imprecision and focusing on the notion of positioning: distance depends on the relationship between objects and relationships are also of a social nature.

The incorporation of these concepts in sociology enables an interesting reading of the contribution of space and mobility to the production of inequalities. Amongst others, Urry (2007) highlights the notion of access, considering mobility as access to activities, goods and resources and therefore, as a key factor in reproducing inequalities. The capacity to be mobile is nonetheless determined in various social spaces simultaneously (Manderscheid, 2009a). As Cresswell points out (2001 pp. 24), "Different mobilities are always tainted by the particular relations which are embedded within them. Only pure and abstracted movement is placed outside of difference and power".

Technological development and the increase in mobility have been acquiring a very important role in social life. The capacity of the individual to move about and to move other individuals, goods and information has become a powerful force for stratification (Manderscheid, 2009b; Ascher, 2010). Many of the differences in social conditions and class are incorporated in the urban environment through processes of spatial and residential segmentation. The correlation between social position

and place of residence can include architectural features, differences in landscape and in the availability of resources and services. We study the relationship between mobility and the dynamics of social inequality following a more recent perspective on the study of travel behaviours (Cass et al., 2005; Kaufmann et al., 2004; Camarero, Cruz and Oliva, 2014).

Gender is a strong factor of social differentiation and as such it has an effect on mobility. Within the several dimensions in which the gender inequalities can be looked upon –income, employment, health, political participation, family care, etc.– mobility patterns, and namely the time we spend on them, may increase or, on the other hand, help to decrease the structural social and economic inequalities. As Hanson (2010 pp. 8) mindfully reminds us, the post-structural view on gender as a socially constructed system of dynamic differences coexists with the structural view which sees fixed and universal male/ female roles. Therefore, they should both be kept in sight because they are always in play. It was not an object of analysis how the subjects define their gender roles, namely in respect to mobility. People were only asked to identify regarding the variable sex in the dichotomy female/ male. However limited this view may be it enabled a more nuanced reading of the results in what concerns gender roles on the daily management of personal, working and family life. Therefore when referring to the variable on the survey we use the term sex, as asked, and on our readings on the results we allow the analysis to go further on gender roles as socially constructed meanings. The analysis here presented is chiefly a quantitative and exploratory view on structural inequalities concerning gender and mobilities. It continues to be a fundamental question to address concerning the access and the right to the city, in this case, the metropolitan area of Lisbon.

Gendered mobilities have been studied in diverse metropolitan environments (Kwan, 1999a and 1999b; Crane, 2007; Scheiner, 2010; Silm, Ahas and Nuga, 2013). Cresswell and Uteng (2008) look at the differences in mobility between men and women from the perspective of the reproduction of power differences based on gender. Inequality in terms of mobility is framed by the reproduction of the patriarchal relations of domination. An asymmetric tendency persists with women's greater dedication and responsibility for domestic and care giving work. On the other hand, in many places women face greater difficulties finding employment in local labor markets, which prioritize masculine employment and provide poorer working conditions for women (Camarero, Cruz and Oliva, 2014). Both factors –reproductive responsibilities and restrictive labor markets– produce differences in mobility. From this perspective, differences in mobility are considered as social inequalities. Differences in mobility are a consequence and at the same time they contribute to generate more difference, being also a vehicle for the reproduction of social inequalities.

In general, mobility studies have emphasized differences in spatial movements. Mobility requires a broader understanding including not just these flows but also im-

mobilities (Hannam, Sheller and Urry, 2006; Adey, 2006). Thus, mobility is composed of both in the search for resources as the advantages and opportunities of location can reduce the need for movement. The difference between mobility and immobility has to do with the perception and appropriation of the surrounding environment and with the meaning of the movement.

To explore analytically the effect that environment has on the production of differences and the transmission of inequalities in regard to mobility, we will use the notion of the potential for mobility. That is, we are going to evaluate the capacity that a concrete place has to favor or reduce mobility.

Kaufmann, Bergmann and Joyé (2004) showed that the potential for mobility, rather than mobility practices themselves, is crucial for understanding behavior and the conditions of mobility, in particular in terms of inequalities. They demonstrated this using a very useful idea from the social sciences in the study of mobility: motility. In their own words, this refers to “how an individual or group takes possession of the realm of possibilities for mobility and builds on it to develop personal projects” (Flamm and Kaufmann, 2006: 168).

Conceiving motility as an operative concept by breaking it down into the dimensions initially suggested by these authors is also useful for public policies. The notion of motility is particularly relevant at the analytical level - instead of mobility practices, we refer to the potential for mobility.

A greater potential for mobility –or high levels of motility– allows us to establish the difference among conditions, options and choices for mobility. It is not a question of a mere change in vocabulary or in the perception of the experience of mobility. This differentiation has its roots in structural inequalities and also refers to the different degrees of freedom individuals in daily lives.

The approach to motility is interpreted in terms of mobility capital. Individual or group motility is defined by a threefold vision (Kaufmann, Bergmann and Joyé, 2004; Kaufmann & Widmer, 2006; Ohnmacht, Maksim and Bergman, 2009) with different factors stand out in shaping motility. The first, accessibility, is related to possibilities, which can be a result of the infrastructures and people's distribution on place, of policy (transport, for example), and of the social and economic position of the person. The second, skills, refers to the conditions of socialization and it may refer to skills such as knowing or being able to move (having driving license, for example) but also to plan and manage information regarding mobility. The third relates to cognitive appropriation, the way in which values are incorporated into awareness and the experience of mobility, the way individuals interpret and act upon their mobility obligations and possibilities.

The residential environment clearly affects the first factor. Accessibility is determined by the conditions of the physical space and also by the capacity for mobility in the sense that the neighborhood constitutes the immediate social environment.

In this sense we measure environmental motility through to the conditions of the residential environment as a set of socio-spatial dimensions. Kaufmann's motility focuses on the mobility potential of actors, i.e. all the factors specific to an actor that define his or her capacity to move, as well as the contextual dimension. Yet, the notion of *environmental motility*, developed in this article, considers fundamentally the contextual dimension.

3. METHODOLOGY AND DATA

The main data source is from a representative survey of the adult population residing in the 75 parishes that constitute the metropolitan area of Lisbon². A stratified sample by socio-territorial type was used –see Santos (2014)– with proportional allocation to strata and the random selection of clusters (parishes). The selection of units in the final stage was carried out through random-route with control quotas for age, sex, education level and occupational status. In total, 1500 interviews were carried out. Total sampling error for the most unfavorable case of the proportion ($p=q=50\%$) is below 2.5% with a confidence level of 95%. The questionnaire addressed a broad series of research dimensions: socioeconomic and professional characterization, geographic and residential mobility throughout life, daily mobility, participation in family care and assistance, level of interpersonal and institutional trust, participation in collective action and associations, housing conditions, expenses and financial problems. The distribution of variables used in this paper can be examined in table A1, in Annex.

Daily mobility was studied through a record of daily movements and trips made by participants. Data was referred to last labour day. All such movements, their destination, their length, the reasons for them, the means and company were recorded each day to establish different routines and profiles. Based on the information from these diaries, we established a dichotomous indicator to classify participants on the day of reference as mobile if they made a trip, or immobile if they did not leave home. This basic indicator of mobility has the advantage that for different social groups it can be interpreted as the probability of mobility, like a summary measure (See the average column in table A1 in Annex). This dichotomous variable is the dependent variable.

To explain the probability of mobility we proceeded to adjust a logit model to consider sociodemographic –sex, age and children living at home– and socioeconomic variables –economic level and activity–, as well as the effect of the residential environment on mobility - residential motility.

2 Administrative division prior to a recent law passed in August 2015.

The effect that residential environment produces to constrict or to strength the mobility has been measured as Environmental Motility Index (Emotility). This index synthesizes the potential of environmental characteristics to encourage or reduce mobility. To create the index of environmental motility, we used a battery of seven items that gathered information on three dimensions: Neighborhood accessibility, allowing or obstructs the movements to other places; the availability of services that could retain or not the population in the area; and the facilities for social interaction. This last dimension has complex effects depending on the security conditions, on the degree of communitarian cohesion and on the opportunities that the urban environment induces for social interaction. The combination of the three dimensions in a synthetic index is a close measure of the potential mobility induced by residential environment. The index is a composite index made by the aggregation of the values of seven items that compound the quality of residence place scale. Table 1 shows the items that characterize each dimension.

TABLE 1
THE COMPOSITION OF ENVIRONMENTAL INDEX. ITEMS DISTRIBUTION BY SEX

Dimensions	Items	Total	Males	Females	Cases
Neighborhood Accessibility	0. Dreadful	1,1%	1,1%	1,1%	1493
	1. Bad	4,3%	3,8%	4,6%	
	2. Insufficient	7,3%	6,0%	8,4%	
	3. Sufficient	19,1%	19,2%	19,1%	
	4. Good	49,7%	50,2%	49,3%	
	5. Very Good	15,2%	16,9%	13,9%	
Quality of services and infrastructures	6. Excellent	3,3%	2,9%	3,6%	1495
	0. Dreadful	1,9%	1,9%	1,8%	
	1. Bad	3,4%	3,5%	3,4%	
	2. Insufficient	7,8%	7,9%	7,6%	
	3. Sufficient	28,3%	29,0%	27,7%	
	4. Good	46,0%	45,6%	46,3%	
Availability of Services	5. Very Good	10,2%	9,4%	10,9%	1496
	6. Excellent	2,5%	2,6%	2,3%	
	0. Dreadful	2,2%	2,3%	2,0%	
	1. Bad	4,4%	3,7%	4,9%	
	2. Insufficient	12,5%	13,6%	11,7%	
	3. Sufficient	30,1%	31,6%	28,9%	
Education and health services	4. Good	39,9%	38,4%	41,1%	1472
	5. Very Good	9,6%	9,1%	9,9%	
	6. Excellent	1,3%	1,3%	1,4%	
	0. Dreadful	2,5%	2,2%	2,7%	
	1. Bad	4,3%	4,7%	4,0%	
	2. Insufficient	10,3%	9,2%	11,1%	
	3. Sufficient	26,6%	26,6%	26,6%	
	4. Good	44,2%	44,9%	43,6%	
	5. Very Good	10,2%	11,0%	9,7%	
	6. Excellent	2,0%	1,4%	2,4%	

Continued on next...

TABLE 1
THE COMPOSITION OF ENVIRONMENTAL INDEX. ITEMS DISTRIBUTION BY SEX
(CONTINUED FROM PREVIOUS PAGE)

Dimensions	Items	Total	Males	Females	Cases	
Facilities for social Interaction	Security	0. Dreadful	1,5%	1,7%	1,4%	1496
		1. Bad	5,0%	4,7%	5,3%	
		2. Insufficient	9,7%	8,0%	10,9%	
		3. Sufficient	32,7%	35,9%	30,2%	
		4. Good	39,2%	37,8%	40,3%	
		5. Very Good	9,7%	10,0%	9,5%	
	Interpersonal Relations (neighborhood, community...)	6. Excellent	2,3%	2,0%	2,5%	1482
		0. Dreadful	0,4%	0,1%	0,7%	
		1. Bad	2,6%	1,9%	3,2%	
		2. Insufficient	4,7%	4,7%	4,8%	
		3. Sufficient	22,2%	23,3%	21,3%	
		4. Good	52,7%	53,8%	51,8%	
	Opportunities for leisure and consumption	5. Very Good	14,0%	14,0%	14,0%	1497
		6. Excellent	3,4%	2,3%	4,2%	
		0. Dreadful	1,9%	1,5%	2,3%	
		1. Bad	7,0%	6,8%	7,2%	
		2. Insufficient	14,0%	14,1%	13,9%	
		3. Sufficient	27,7%	27,3%	28,1%	
	4. Good	38,4%	38,2%	38,5%		
	5. Very Good	8,7%	9,9%	7,8%		
	6. Excellent	2,2%	2,2%	2,3%		

Each item was punctuated by the interviewees from 0 “dreadful” to 6 “very good”. By the sum of punctuations of the seven items an aggregate index was calculated. The sum value was rescaled to fit the index in the same scale from 0 - low - to 6 – high. The average is 3.51, with a standard deviation of 0.832. It has an approximately normal distribution ($p < 0.001$ on the Kolmogorov-Smirnov test). (See Figure A1 and Table 1 in Annex)

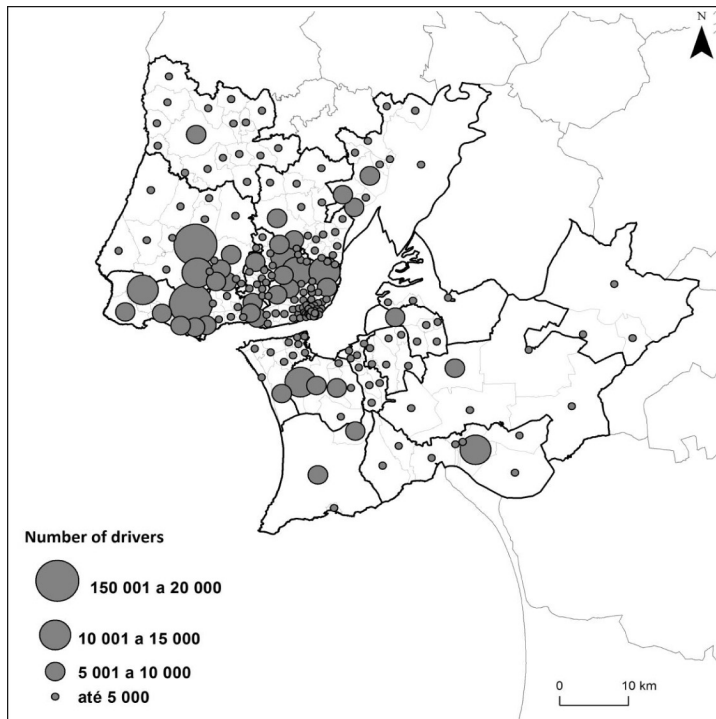
To interpret the results we used the logit probabilities instead the value of beta coefficients. The probabilities associated to beta coefficients show and let draw the function of interaction of variables considered under control conditions. Once the model was adjusted with significant variables we look into using the logit probabilities the effect of gender and environmental motility in mobility intensity when the rest of the significant variables are constant.

4. INTRODUCING LISBON'S METROPOLITAN MOBILITIES

The city of Lisbon is the center of a large metropolitan area with more than 2.5 million inhabitants. It is a fragmented city characterized by a mixture of socially

polarized neighborhoods and small enclaves (Salgueiro, 2001 pp. 186). Over the past three decades, the suburbanization of the territory surrounding the city has followed two processes: a) the construction of large residential developments generally promoted by large developers; b) marginal production with the construction of housing on clandestine plots by individuals (Salgueiro, 2001). These areas encompass very different situations in regard to social inequality and income (Carmo & Carvalho, 2013).

FIGURE 1
NUMBER OF DRIVERS BY PARISH, 2011



Source: INE, 2011 in Santos, 2014

The existing complexity and diversity in the fragmented spatialization of social groups, however, does not mean that we do not find a segregated model. Residents of the city of Lisbon and the surrounding areas enjoy better conditions for mobility through public transport. In the more distant areas in which rural characteristics prevail, we also observe the logic of the localization of social groups with greater

economic capacity who are looking for the exclusivity and isolation ensured by difficult access to public transport. In contrast, individuals and families with fewer financial resources are located on the outskirts of the city, in places close to and connected to the labor market by public transport and where low cost housing can be found.

The key trend in the evolution of the LMA in the period from 1991 to 2001 was the increase in the use of the automobile (from 565,094 in 2001 to 644,969 in 2011).

The use of public transportation across the urban hierarchy continues to reveal a direct relationship between the supply of transport and proximity to Lisbon, which is the most common destination of these trips. In general, there has been a decrease in the time length of commutes, due not only to a greater use of the automobile, but also to the improvement of certain aspects of public transportation. The improvement of service on certain railroad lines, as well as the increase in non-metropolitan parking to encourage use of public transport, have expanded the supply of transport not only in the first generation suburbs, such as Amadora and Odivelas, but also in poorer neighborhoods of the Lisbon municipalities (for example, Ameixoeira and Marvila).

Although transport conditions (public or private) may show some improvements in a strict sense regarding the characteristics of travel, mobility is not determined only by these factors and cannot be detached from the structure of the metropolitan area. In this respect it is possible to distinguish two models in the expansion of the LMA from 1991 to 2001: a compact model corresponding to the consolidated urban fabric that grew in density (Sintra, Vila Franca de Xira), developed by the railroad and by express roads, and a model based on more intensive land-use in extension-dispersion with lower densities (Mafra, Sesimbra, Palmela and Alchochete) (INE, 2001). Above all, the latter model continued its expansion over the last decade based on the automobile and despite a trend revitalizing the central city of Lisbon (INE, 2003; Costa, 2007; Padeiro, 2012 and 2014; Padeiro & Costa, 2013; Pereira & Silva, 2008; Nunes, 2011).

In recent decades, as noted, we see a widespread increase in car use, which is also reflected in the decrease of the time spent commuting and an increase in the distance covered in the same amount of time. This increase is both the result of an improvement in the population's living standards and purchasing power, and a consequence of relationship between urban and transport planning which has favored the use of the automobile.

As with geographic inequalities, social inequalities in Portugal are at worrying levels, not only regarding income (Carmo & Carvalho, 2013), but also in regard to gender (Cantante, 2015). The double shift among women - paid employment and greater responsibility for domestic tasks - is common.

In 2011, data from the European Quality of Life Survey (EQLS) revealed the significance of gender differences in time use: women on average spend 22 hours per week on childcare, 15 hours per week on domestic tasks and cooking, and

11 hours per week in providing care for the elderly and other dependent adults; while for men the time spent on the same tasks is 15, 8 and 8 hours respectively (Eurofound, 2012d, pp. 58, cited in Barroso, 2013). In 2003, Portugal's National Statistics Institute (INE) had presented an analysis of the social differentiation of geographic mobility based on the 2001 Census. The main conclusions pointed out that higher socioeconomic groups use car above the average but we see a clear difference by gender (more men than women doing so) and collective transport is used fundamentally by women and students.

Based on the results of the survey carried out in the LMA as part of the LOCALWAYS project, we tried to check if these trends continue. Generally, 33% of women use a car as their means of transport in comparison to 48% of men. These findings merit a closer look. They are basically the same results as those found in the original INE study a decade ago. There is a masculinization of car use, and it is mostly women and students who use collective means of transport or walk above the average. The study also finds that working women in more skilled occupations also use the automobile more. Thus, age, occupation and gender interact in the production of mobility.

The gender gap reflects itself in resources and competencies related to mobility. Almost 60% of those surveyed have a driver's license. Almost 30% don't have a car, around 50% live in households with one car and 18% with two or more. There is a strong relationship between driving and gender, as a much higher proportion of men have licenses than women³. Among people of 65 years of age or more, 80% of the men have a driver's license, while the figure for women is below 20%. However, this association is weaker among younger generations: among those 18 to 34 years of age, the difference in the proportion of men and women with a driver's license is approximately 10 percentage points higher among the former. Nevertheless, if we look at a key group, those between 35 and 39 years of age – a working group frequently families with small children - we find that the difference is again significant: while 83% of the men in this group have licenses, only 58% of the women do.

Gender is particularly significant when we look at family management of mobility. Seventeen percent of respondents said they had dependents. Within this group, 70% of women said they were the main or only person responsible for the mobility of dependents, in comparison to 30% of the men (= 55,584, $p < 0,001$; Cramer's $V = 0,489$). Mobility and immobility are closely linked: the greater freedom of mobility of men, particularly when they have children, is associated with, or is enabled by the greater mobility constraints of women.

3 $\chi^2_{(3)} = 26,798$, $p < 0,001$, Cramer's $V = 0,317$.

5. GENDER AND ENVIRONMENTAL MOTILITY EFFECTS ON PROBABLE MOBILITY

As mentioned, this article seeks to measure to what extent the physical and social conditions of the residency place influence the intensity of mobility. To do that a logit model will be considered to explain daily mobility as function of the variables gender and environmental mobility, using as control variables the familiar composition, the economic activity, the economic level and the effect of age.

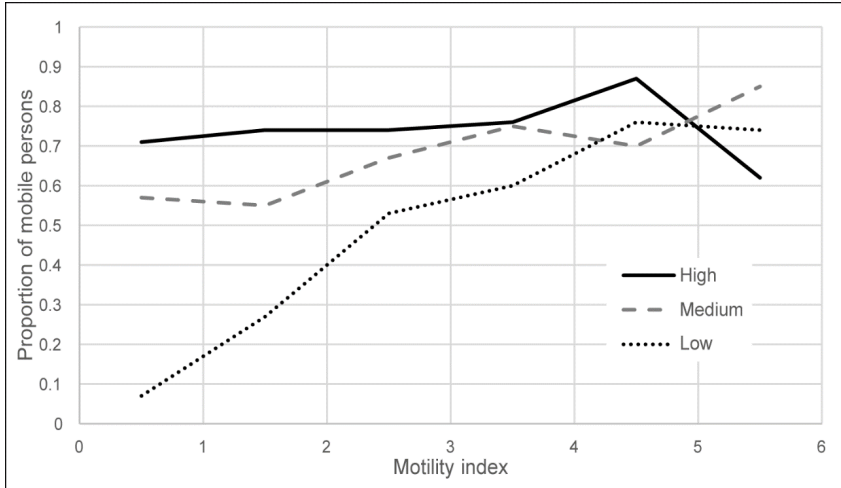
To understand the effect of the environment, we look for a measure based on motility. Kaufmann referred to it (2002), it is the appropriation of opportunities for mobility by the subject. Motility refers to the propensity to move. In the local and residential environment we find various factors that contribute to establishing a potential for mobility: accessibility, availability of services and neighborhood. With the term environmental motility we want to reflect the predisposition of the environment within which mobility takes place. In our case we have considered the following factors:

- a) Evaluation of the resources of the residential area: conditions of facilities, quality of public space and presence of educational and health care services.
- b) Evaluation of the social environment: safety, neighborhood and leisure space.
- c) Accessibility.

We have established an overall scale evaluating these aspects ranging from 0 to 6. The highest score indicates an excellent evaluation of facilities, the social environment and accessibility, which in turn is an indication of high motility; that is, the environment offers optimal conditions for mobility. In contrast, low scores indicate difficulties in moving about. In conditions of low motility, the cost, that is the economic and time efforts involved in being mobile is greater. Mobility is measured in terms of the probability of a subject carrying out a trip, for whatever reason, on the day of reference.

We must also consider the fact that residential environments in the LMA are relatively homogeneous in socioeconomic terms, that is, a certain degree of residential segmentation exists, which means that the conditions and characteristics of the environment have a relationship to individuals' economic capacity and socioeconomic status. The relationship between motility and economic position reveals the complementary impact that economic capacity has on the environment (Figure 2). In situations of low economic level, mobility is sensitive to environmental conditions and in this sense is a function of it. Only in "friendly" environments is mobility possible. Persons with average or high incomes are able to neutralize the effect of the environment. For example, for persons with high incomes, mobility is constant and independent of the characteristics of the environment; in fact, in situations of high motility, greater accessibility produces a decline in mobility.

FIGURE 2
**RELATION BETWEEN MOBILITY AND ENVIRONMENTAL MOTILITY BY
 INCOME LEVELS**



Source: Localways Survey 2014.

We have developed a model to fit the probability of mobility understood as the intensity of movements. In addition to environmental conditions, we also consider three groups of variables: personal, family and life position. The six variables -see its distribution in table A1 in Annex- that were ultimately significant and reflect demographic, socioeconomic, family and environmental factors are:

- sex (Sex) and age (Age2) as personal variables –age is introduced as a quadratic effect–;⁴
- the presence of children in the household (Minors) and economic level (IncomeP) as family conditions;
- position in the economic activity structure (Pactivity) as an indicator of life position;
- along with these variables, the model includes the index of environmental motility (Emotility).

4 Age2 is the value of age squared.

The results from the regression model show that in general mobility is higher among men - the value of the logit, 1.75, is approximately double - and declines with age - with a negative coefficient- (Table 2. Mobility is directly related to income, to economic activity and to motility. In addition, family responsibilities and the presence of children in the home reduce the capacity for mobility. The indicators fit quite well. The percentage of correct forecasts is 75.8% of the cases (Sensitivity=87.8% and Specificity=46.6%).

TABLE 2
LOGISTIC REGRESSION MODEL TO PREDICT MOBILITY AS FUNCTION OF DEMOGRAPHIC, SOCIOECONOMIC, FAMILY AND ENVIRONMENTAL FACTORS

	B	Standard error	Sig.	Exp(B)
Sex(Male)	0.56	0.142	***	1.75
Age2	-1.076x10 ⁻⁴	4.581x10 ⁻⁶	*	9.999x10 ⁻¹
IncomeP	***	***	***	***
IncomeP(Medium)	-0.325	0.155	*	0.722
IncomeP(Low)	-0.793	0.186	***	0.453
Emotility	0.23	0.081	**	1.259
Pactivity	***	***	***	***
Pactivity(Unemployed)	-2.349	0.219	***	0.095
Pactivity(Inactive)	-1.706	0.186	***	0.182
Minors(Yes)	-0.594	0.203	**	0.552
Constant	2.098	0.370	***	8.148

***Sig. <1/100 **Sig. <1/100 *Sig. <5/100. LL²=1314,648; R² Cox&Snell=0,216; R² Nagelkerke=0,309

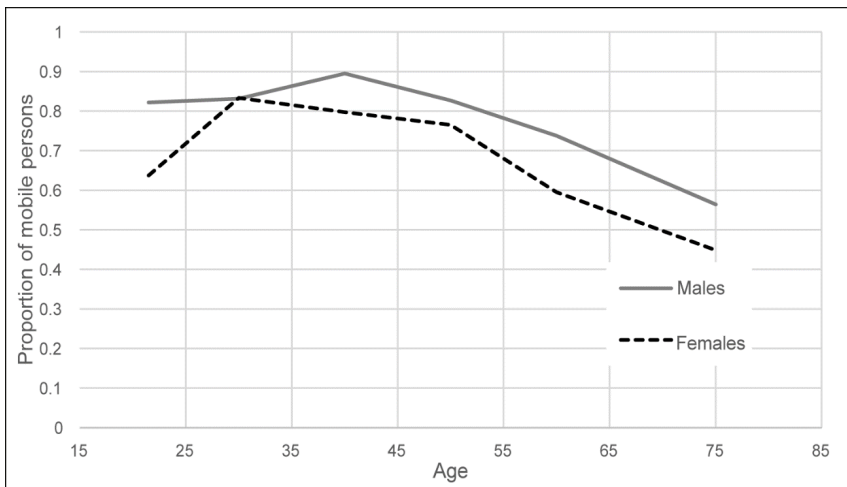
Source: Localways Survey 2014.

Once other relevant variables that impact on mobility are controlled, the logit model allows us to look at the effect of the study variables on the likelihood of mobility. In order to isolate the “gender gap”, that is, the difference in effort or cost between men and women in terms of mobility, we look at the differential effect that the environment, in terms of motility, has on them. Our principal aim is to show the added effect that environmental conditions have on gender inequalities. We maintain the different significant variables constant to deduct the overall effect between residential motility and gender.

Age, to the extent that it reflects life position, is a synthetic variable. The differences in mobility by age are important and follow a pattern of an inverted parabola

(Figure 3). Based on this, age has been considered with a quadratic effect so that it will more precisely reflect the situation of greater immobility among younger and older adults, and greater mobility in middle ages. When it was necessary to make age constant, we chose the value of 40 years of age.

FIGURE 3
RELATION BETWEEN MOBILITY AND AGE BY SEX CATEGORY



Source: Localways Survey 2014.

The first step of the analysis was to contrast the differences among those cases with the greatest inequality regarding mobility between men and women. We have looked for the situation of maximum mobility among men and the inverse situation of minimum mobility among women. In both situations we analyze the overall variation that age and levels of motility produce. Figures 4 and 5 show these results. Figures show the probability function associated to logit model with the selected variables when the rest are fixed in one category. For example, table 4 shows the probability to move by age for some discrete values of motility index once the other variables are fixed in categories: men employed with high income without minors at home. Note that although in both figures the mobility index is on the same scale, the values on the axes have different extremes, near 0 in the case of the group with the highest immobility, and near 1 in the case of the groups with maximum mobility.

In the first situation, the highest mobility possible corresponds to the profile of men with high incomes and without family responsibilities. This is a very high level of mobility, very independent from the environment and with only a very slight loss of

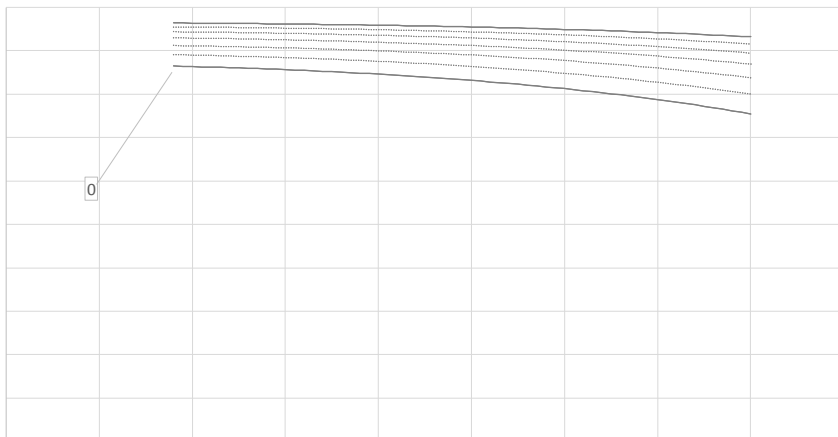
mobility in function of age. The opposite situation, of highest immobility, corresponds to the profile of unemployed women with family responsibilities. In this case, both the environment and age contribute to reducing mobility significantly. There is an inverse interaction between age and motility in both cases.

In situations of high mobility the effect of environmental conditions is reduced, although it increases slightly with age. However, in situations of low mobility, the effect of the environment is clear among younger adults.

The main conclusion from these results is that the environment can have a significant impact on mobility depending on personal and family situation, and has greater impact among younger adults. This suggests that the environment not only affects the gender gap, but also contributes to producing a generation gap, to the extent that it affects the mobility of the young, conditioning their future life paths.

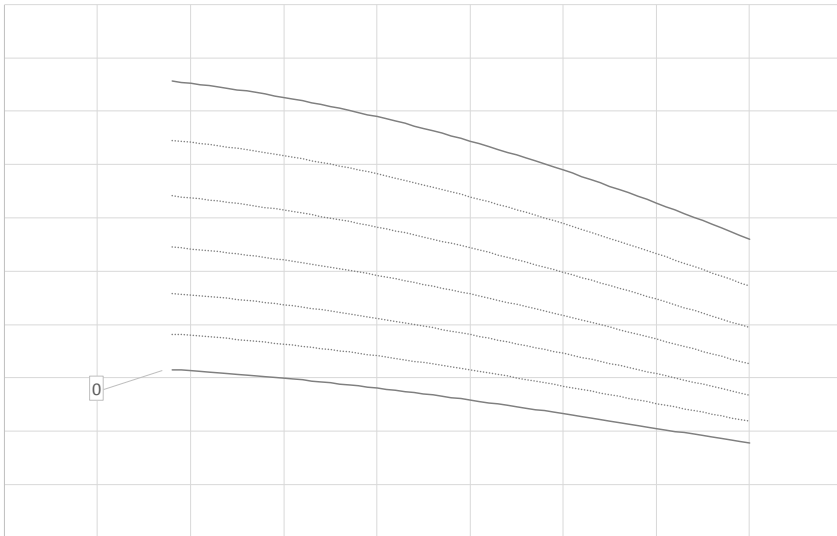
Mobility practices are a result of patterns and routines, which mix and relate places, ways and reasons for mobility with different social positions. Moreover practices to avoid mobility should also be considered.

FIGURE 4
**MOBILITY FUNCTION (PROBABILITY) BY AGE AND MOTILITY LEVELS.
 HIGH MOBILITY GROUP (MALES, EMPLOYED, HIGH INCOME, LIVING
 WITHOUT MINORS)**



Source: Localways Survey 2014.

FIGURE 5
**MOBILITY FUNCTION (PROBABILITY) BY AGE AND MOTILITY LEVELS.
 LOW MOBILITY GROUP (FEMALES, UNEMPLOYED, LOW INCOME,
 LIVING WITH MINORS)**



Source: Localways Survey 2014.

6. THE GENDER GAP AND CUMULATIVE REPRODUCTION OF INEQUALITIES IN MOBILITY

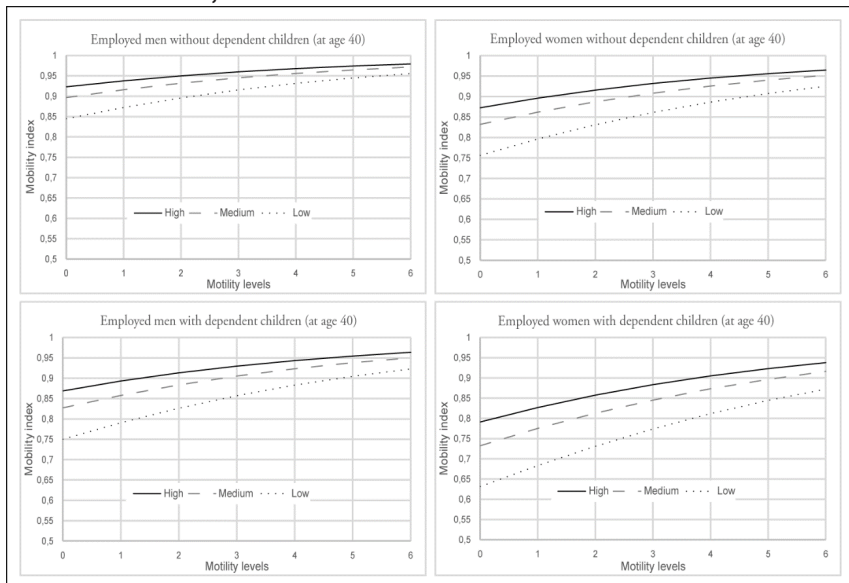
This section seeks specifically to measure to what extent, as a function of gender inequalities, the physical and social conditions of place of residence modulate the mobility daily practices. We draw upon the idea is that gender gap in mobility is a way to produce and maintain gender inequalities. There are movements that broaden alternatives and that expand local opportunities, for example, travels related to leisure activity for young people, while there are other movements, such as those related to care of family members, which can be considered obligations and be perceived as more limited or directed by the conditions and constrictions of the immediate environment. As rightly pointed out by Cresswell (2001), there are mobilities that are based on the immobilities of others.

From this perspective, the aim of the study is to know the effects that residential environment has to support the mobility differences between men and woman. With

this purpose, the analysis will examine separately the relationship between environmental motility and mobility, controlling some key variables –childcare, income and labour engagement- for the central age group.

We consider the central case 40 years of age and the most common situation at this age is to be employed. In addition, at this age life and residential paths are well-defined. As we have seen previously, mobility is greatest at this age and the rate of economic activity is also highest at this time in life, as is involvement in childcare. Regarding this age and the most frequent situation at this age, being employed, we can see the combined effect of motility and income level differentiated by gender and the presence or absence of family responsibilities.

FIGURE 6
MOBILITY PROBABILITY BY MOTILITY LEVELS CONTROLLED BY AGE, SEX, FAMILY AND LABOR CHARACTERISTICS



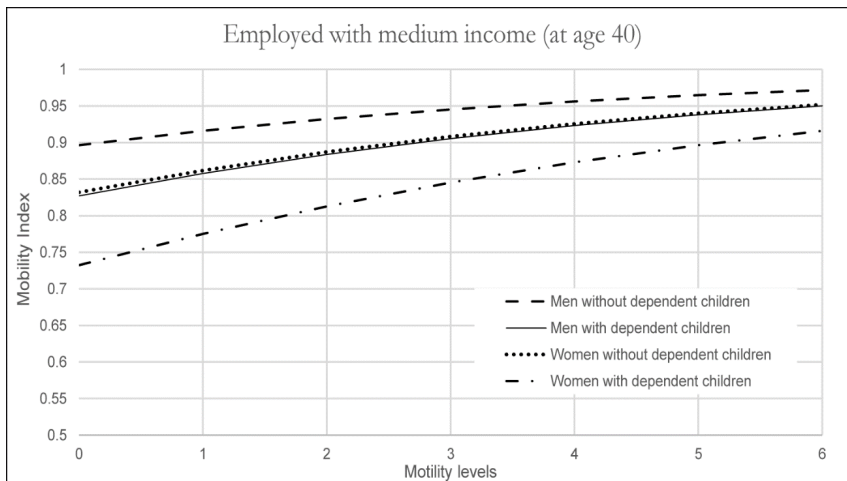
Source: Localways Survey 2014.

The graphs (Figure 6) show the effect these variables have. The mobility of women is in general lower and the presence of children has a notable effect in reducing mobility. Family responsibilities increase gender inequality even more.

This finding is not surprising; it affirms the thesis of the impact of family responsibilities on women. However, the effect on other variables such as income level or

degree of motility is noteworthy. Income and environmental conditions could reduce the effect that having children in the household has; however, that is not what we have found for gender. In Figure 7 we see that being a man with children is equivalent, in terms of mobility, to being a woman without children.

FIGURE 7
GENDER GAP IN MOBILITY. THE EFFECTS OF MOTILITY BY FAMILY COMPOSITION (CONTROLLING AGE, ACTIVITY AND INCOME)



Source: Localways Survey 2014.

Mobility has a direct relationship to income level. However, the mobility gap due to income level is greater among women and more so among women with children. Family context and gender both increase the impact of socioeconomic inequality on mobility.

Even so, we see that in high motility environments differences in mobility caused by different personal and family situations are lower. Environment can have a greater impact on mobility than personal and family situation. However, in the case of women with children the environment has a lower impact; it moderates inequalities in mobility, but does so in a proportional manner.

These data show that gender inequalities related to mobility increase with the weight of family responsibilities. These gender differences also increase with low income and low motility, but are relatively less significant for people with higher incomes and/or in high motility environments. Regarding the working/ student population with fewer economic resources, women living in poorer areas and with reduced public transportation are particularly vulnerable to mobility problems. Thus, mobility is associated with

different economic and territorial resources, translating into an additional condition of certain privileged urban spaces, and at the same time a lack of alternatives in rural areas.

In this study, we have addressed the effects that income and motility have separately. However, in practice, as a result of residential segmentation, there is a positive correlation between income and motility and their combined effect can be relatively greater.

Other recent studies have gone beyond what has been the primary explanation for differences in the frequency of commuting between men and women: differences in family responsibilities (Neto, Duarte and Páez, 2015). In fact, as analyses of mobility incorporate different family and individual variables, the relationships observed can be different from what is expected. For example, Kwan (1999a) found that women that work full-time travel greater distances than men. Cattán (2008) found, after reviewing different studies on distances traveled, that the greater the family responsibilities the greater the distances traveled. Time is prioritized over distance. These relationships were noted by Hanson and Johnson earlier (1985) and also regarding rural areas (Camarero, Cruz and Oliva, 2014). Crane (2007) explored the strategies behind changing residence and work on the part of women to adjust to their daily activities. Scheiner (2014) and Scheiner and Holz-Rau (2013) added the increase in complexity of mobility routines for women in periods of child-raising, and especially during the raising of a second child. These studies find the increase in the complexity of mobility - more movements and destinations - that results from care-giving, and the reduction of entropy from mobility - given that employment activity is simplified - lead to greater use of private vehicles.

Although these studies cannot be generalized outside of the context of their location - different metropolitan areas - they do reveal the importance that the mode of transport has beyond its mere utilitarian function linking place of origin and destination. These different studies suggest that the correlation between trajectories and ways of moving is a product of the adjustment and strategies of individuals to deal with unequal conditions, rather than only a rational decision to minimize travel time. The occupations with the best economic and career conditions are concentrated, in general, in specific areas in urban centers. Access to stable and full time employment necessitates more travel and more time, given that commuting to city centers is done on public transport. In addition, greater family responsibilities also produce a need for higher income and more mobility.

In short, the literature shows and our findings confirm that in examining mobility it is essential to address the surrounding environment and especially residential environments in order to explain different situations. The opportunities for women are distributed unequally across a geographic area as argued by the "genderization" thesis. In this sense, we can describe the cascade of effects that connect family position with employment trajectory, with mobility and with place of residence (Cachado, Carmo and Ferreira, 2017).

7. FINAL REMARKS

The research presented is of exploratory character. The analysis has been carried for general adult population and the mobility index used is a measure of total mobility that includes all kind of displacements. With the objective to show the effect that environmental motility has in the mobility, the study has used a general definition of neighbourhood accessibility, that it has been measured through the feeling of accessibility expressed by the own interviewed. The subjective measure, nevertheless, blurs the interaction between socioeconomic characteristics and place of residence. The residential segmentation is crucial to understand the mobility differences by sex. As it has been shown recently by Torrado, Romani and Susino (2018) the observed differences in general mobility between man and woman are, of course, gender differences added to other socioeconomic characteristics. Gender differences act directly but also indirectly through the differences in the type of engagement in labour market. The location is another variable to take account. Nevertheless, in this case, the use of districts as variable of control has not been possible due to the sample size.

Presumably the relationships between socioeconomic groups and residential locations have particular influence in the transport issue. As it has been showed before, Lisbon Metropolitan Area suffers an important residential segmentation, and it is clearly linked to the public transport offer. Differences in availability and access to transport are relevant in the case of long displacements and commuting, those that affect more intensely daily-life routines. The research design controlled by some socio-territorial segmentation reflected the opportunities produced by transport accessibility to commute or to do long displacements. In doing so, it enabled the specification of new forms mobility inequalities by gender.

Despite the limitations of an exploratory approach, the data showed the effect that different variables have on mobility. These are commonly examined factors - income, age, family composition, economic activity - that, as expected, directly affect mobility, either strengthening or reducing it, based on gender and responsibility for the care of family members. However, the limited impact these variables have in neutralizing positive and negative effects is striking. For example, we did not find situations in which environmental circumstances or income were able to moderate gender related inequalities. In contrast, we did find a strong feedback among different sources of inequality. In other words, although mobility may be a tool to reduce social inequalities increasing some opportunities, data suggest that differences in mobility are not only an effect of social inequalities; they are a mechanism to reproduce social inequalities too. Mobility is not sufficient to moderate big social inequalities as gender or economic issues.

Regarding the questions discussed at the beginning of this article on the effect of the environment on inequalities in mobility based on gender, our analysis has

confirmed the importance of gender inequalities. These are transversal inequalities, and they maintain their impact in all the situations analyzed. In general, we can state that the conditions determining the motility of the environment have an effect on individual mobility, but their effect is to amplify social inequalities and concretely, gender differences.

Mobility is constructed differently between men and women. This is in part because of the inequality that results from the cultural differentiation generated in the patriarchy, but also in part because of differences in the impact inequalities in the environment have for men and women. As a result, mobility becomes a fundamental vehicle for transmitting inequalities. It plays an important role in magnifying diverse types of advantages and disadvantages, reflecting the systemic aspect that Bihl and Pfefferkorn (2008) attribute to social inequalities.

In interaction with these broader dynamics, having children or being responsible for other dependent persons, having physical limitations that affect mobility or being a woman can all equally condition mobility patterns. These circumstances intersect with income and geographic inequalities to shape limitations in mobility. As Ascher (2010) has pointed out, new means of transport and communication open up possibilities for choosing place of residence and other goods, but these opportunities are differentiated socially and geographically.

The analysis shows that mobility, in addition to being a product, is also a transmitter of social inequalities. Along these lines Hanson's perspective (2010) is interesting. For her, precisely because of their importance as socially imposed mechanisms, mobilities are also an element for change and the transformation of power relations. It is important to think about mobility beyond mere urban planning and development. As a vector of transmission, it is also an ally in the structuring of more accessible and egalitarian spaces, cities and regions.

Regarding the Lisbon Metropolitan Area, the conclusions of our study show that the social and physical environment continue to be factors that contribute to the persistence of inequalities in the potential individuals have to be mobile. In this regard it has a decisive impact on the most vulnerable social groups. In the case of poorer, less educated women with responsibilities for the care of dependent persons, the situation is truly worrying, as these women find themselves at one extreme of a cumulative process of inequality that manifests in their reduced capacity to be mobile independent in the metropolitan context. "Thus, this makes the need to implement policies that strengthen public transport (diversifying networks and connections) urgent, enabling greater equality in access to the means of available transportation, and in turn reducing society's dependence on the use of the automobile" (Carmo, Santos and Ferreira, 2017 pp. 45).

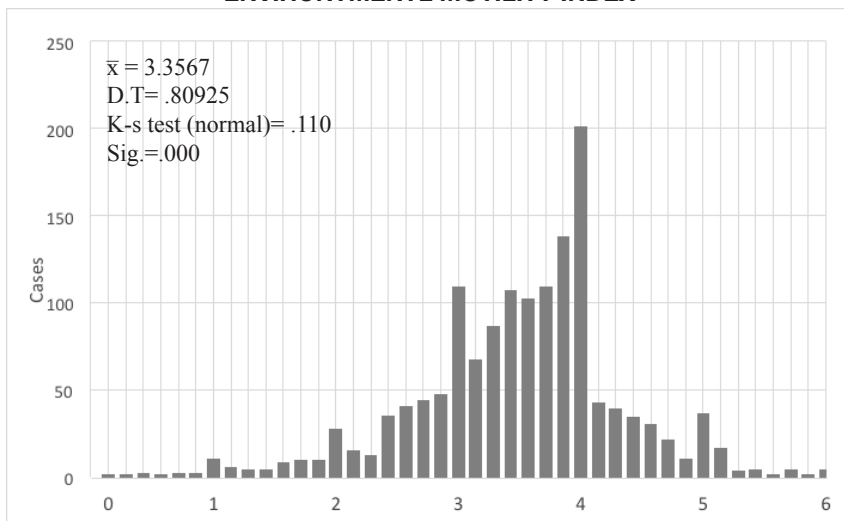
ANNEX

TABLE A1
DISTRIBUTION OF MAIN VARIABLES USED

		Cases			Motility Index		Mobility Index		
		Un-weighted	Weighted	%	D.T.	D.T.	D.T.		
Sex	Total	1500	1500	100,0%	3,509	0,832	0,708	0,455	
	Male	655	654	43,6%	3,516	0,812	0,765	0,425	
	Female	845	846	56,4%	3,503	0,847	0,664	0,473	
Age	Total	1500	1500	100,0%	3,509	0,832	0,708	0,455	
	18-19	48	53	3,6%	3,481	0,931	0,765	0,428	
	20-24	97	100	6,7%	3,584	0,979	0,719	0,452	
	25-29	88	90	6,0%	3,658	0,705	0,777	0,419	
	30-34	123	120	8,0%	3,527	0,812	0,875	0,333	
	35-39	139	145	9,7%	3,575	0,804	0,865	0,343	
	40-44	123	122	8,2%	3,569	0,758	0,813	0,392	
	45-49	132	136	9,1%	3,658	0,941	0,791	0,408	
	50-54	120	122	8,1%	3,375	0,838	0,786	0,411	
	55-59	112	112	7,4%	3,492	0,834	0,693	0,463	
	60-64	143	143	9,5%	3,392	0,769	0,638	0,482	
	65-69	131	123	8,2%	3,329	0,807	0,545	0,500	
	IncomeP	70-74	99	97	6,5%	3,384	0,842	0,542	0,501
75-79		67	62	4,1%	3,548	0,726	0,472	0,503	
80+		78	74	5,0%	3,616	0,823	0,375	0,487	
Total		1422	1424	100,0%	3,507	0,830	0,709	0,455	
High		546	566	39,7%	3,542	0,817	0,772	0,420	
Medium		583	574	40,3%	3,535	0,789	0,710	0,454	
Low		293	285	20,0%	3,379	0,922	0,58	0,494	
Total		1500	1500	100,0%	3,509	0,832	0,708	0,455	
Pactivity		Employed	737	759	50,6%	3,585	0,798	0,895	0,307
		Unemployed	163	156	10,4%	3,406	0,931	0,440	0,498
	Inactive	600	585	39,0%	3,436	0,839	0,537	0,499	
	Total	1500	1500	100,0%	3,509	0,832	0,708	0,455	
Minors	No	1173	1167	77,8%	3,480	0,846	0,673	0,469	
	Yes	327	333	22,2%	3,609	0,772	0,830	0,376	
	Total	1500	1500	100,0%	3,509	0,832	0,708	0,455	
District	Lisboa	280	293	19,6%	3,585	0,868	0,644	0,480	
	Cascais	80	89	6,0%	4,044	0,711	0,788	0,411	
	Loures	120	139	9,3%	3,424	0,861	0,646	0,480	
	Oeiras	100	117	7,8%	3,452	1,000	0,785	0,412	
	Sintra	180	210	14,0%	3,291	0,719	0,810	0,393	
	Amadora/Odivelas	100	131	8,7%	3,360	0,610	0,837	0,371	
	Maíra/V.F.Xira	160	105	7,0%	3,155	1,129	0,528	0,502	
	Alcochete/Palmela/Montijo	160	83	5,6%	3,668	0,727	0,649	0,480	
	Seixal/Moita/Barreiro	100	115	7,7%	3,574	0,794	0,763	0,427	
	Almada	100	120	8,0%	3,661	0,589	0,697	0,462	
	Sesimbra/Setubal	120	98	6,5%	3,607	0,684	0,620	0,488	

Source: Localways Survey 2014.

FIGURE A
ENVIRONMENTL MOTILITY INDEX



Source: Localways Survey 2014.

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REFERENCES

- ADEY, P. (2006): “If mobility is everything then it is nothing: towards a relational politics of (in)mobilities”. *Mobilities*, No. 1, pp. 75–94.
- ASCHER, F. (2010): *Novos Princípios do Urbanismo seguido de Novos Compromissos Urbanos*. Lisboa: Livros Horizonte.
- BARROSO, M. (2013): *Qualidade de vida profissional em contextos organizacionais no Norte e Sul da Europa*. Dissertação de Doutoramento em Sociologia, ISCTE-IUL, Portugal. <http://hdl.handle.net/10071/7444>
- BIHR, A. & PFEFFERKORN, R. (2008): *Le système des inégalités*. Paris: La Découverte.
- CAMARERO, L., CRUZ, F., OLIVA, J. (2014): “Rural sustainability, inter-generational support and mobility”. *European Urban and Regional Studies*, Vol. 23, No. 4, pp. 734–749.
- CAMARERO, L. & OLIVA, J. (2008): “The social face of urban mobility in Spain”. *International Journal of Urban and Regional Research*, No. 32, pp. 344–362.
- CANTANTE, F. (2015): “Desigualdades de género no topo das desigualdades salariais em Portugal”. In CARMO, R. & Costa, A. (Eds.) *Desigualdades em Questão: Análises e Problemáticas*, Lisboa: Mundos Sociais, pp. 109–121.
- CARMO, R., SANTOS, S., FERREIRA, D. (2017): “Unequal mobilities’ in the Lisbon Metropolitan Area: daily travel choices and private car use”. *Finisterra - Revista Portuguesa de Geografia*, Vol. LII, No. 106, pp. 29–48.
- CARMO, R. & CARVALHO, M. (2013): “Multiple disparities: earning inequalities in Lisbon. Landscape and Geodiversity”. *Studies of integrated geography*, No. 1, pp. 36–46.
- CASS, N., SHOVE, E., URRY, J. (2005): “Social exclusion, mobility and access”. *The Sociological Review*, Vol. 53, No. 3, pp. 539–555.
- CATTAN, N. (2008): “Gendering Mobility: Insights into the construction of spatial concepts”. In UTENG, T. y CRESSWELL, T. (eds.), *Gendered Mobilities*. Aldershot: Ashgate, pp. 84–97.
- CACHADO, R., CARMO, R., FERREIRA, D. (2017): “Usos e meios de transporte na Área Metropolitana de Lisboa: uma abordagem qualitativa da mobilidade”. *Análise Social*, No. 223, pp. 392–415.
- CRANE, R. (2007): “Is there a quiet revolution in women’s travel? Revisiting the gender gap in commuting”. *Journal of the American Planning Association*, Vol. 73, No. 3, pp. 298–316.
- CRESSWELL, T. (2001): “The production of mobilities”. *New Formations*, No. 43, pp. 3–
- CRESSWELL, T. & UTENG, T. (2008): “Gendered Mobilities: Towards an Holistic Understanding”. In UTENG, T. & CRESSWELL, T. (eds), *Gendered Mobilities*. Aldershot: Ashgate, pp. 1–12.
- DUNCAN, O. & DUNCAN, B. (1957): *The Negro population of Chicago: A study of residential succession*. Chicago: University of Chicago Press.
- FLAMM, M. & KAUFMANN, V. (2006): “Operationalizing the concept of motility: A qualitative Study”. *Mobilities*, Vol.1, No. 2, pp. 167–189.
- HANNAM, K., SHELLER, M., URRY, J. (2006): “Editorial: mobilities, immobilities and moorings”. *Mobilities*, No. 1, pp. 1–22.
- HANSON, S. & JOHNSTON, I. (1985): “Gender differences in work-trip length: explanations and implications”. *Urban Geography*, No. 6, pp. 193–219.
- HANSON, S. (2010): “Gender and mobility: new approaches for informing sustainability”. *Gender, Place & Culture*, Vol. 17, No. 1, pp. 5–23.
- HARVEY, D. (1982): *The Condition of Postmodernity*. Oxford: Basil Blackwell.
- INE (2001): *Tipologia socioeconómica da Área Metropolitana de Lisboa – 1991*. Lisbon: Instituto Nacional de Estatística.

- INE (2003): *Movimentos pendulares e organização do território metropolitano: área metropolitana de Lisboa e área metropolitana do Porto: 1991/2001*. Lisbon: Instituto Nacional de Estatística.
- JENSEN, O. (2009): "Flows of Meaning, Cultures of Movements – Urban Mobility as Meaningful Everyday Life Practice". *Mobilities*, No. 4, pp. 139–158.
- LEATHERBY, G. & REYNOLDS, G. (eds.) (2009): *Gendered Journeys, Mobile Emotions*, Farnham: Ashgate.
- KAUFMANN, V. (2002): *Re-thinking Mobility*. Burlington: Ashgate.
- KAUFMANN, V. & WIDMER, E. (2006): "Motility and family dynamics: Current issues and research agendas". *Zeitschrift für Familienforschung*, Vol. 18, No. 1, pp. 111–129.
- KAUFMANN, V., BERGMAN, M., JOYE, D. (2004): "Motility: Mobility as Capital". *International Journal of Urban and Regional Research*, Vol. 28, No. 4, pp. 745–756.
- KWAN, M. (1999a): "Gender, the Home-work Link, and Space-time Patterns of Non-employment Activities". *Economic Geography*, Vol. 75, No. 4, pp. 370–394.
- KWAN, M. (1999b): "Gender and Individual Access to Urban Opportunities: A Study Using Space–Time Measures". *The Professional Geographer*, Vol. 51, No. 2, pp. 210–227.
- MANDERSCHIED, K. (2009a): "Integrating Space and Mobilities into the Analysis of Social Inequality". *Distinktion: Scandinavian Journal of Social Theory*, Vol. 10, No. 1, pp. 7–27.
- MANDERSCHIED, K. (2009b): "Unequal Mobilities". In OHNMACHT, T., MAKSIM, H., BERGMAN, M. (eds.), *Mobilities and Inequality*. Aldershot: Ashgate, pp.27–50.
- MANDERSCHIED, K. (2014): "Criticising the Solitary Mobile Subject: Researching Relational Mobilities and Reflecting on Mobile Methods". *Mobilities*, Vol. 9, No. 2, pp. 188–219.
- MERRIMAN, P. (2014): "Rethinking Mobile Methods". *Mobilities*, Vol. 9, No. 2, pp. 167–187.
- NETO, R., DUARTE, G., PÁEZ, A. (2015): "Gender and commuting time in São Paulo Metropolitan Region". *Urban Studies*, Vol. 52, No. 2, pp. 298–313.
- NUNES, J. (2011): *Florestas de Cimento Armado. Os Grandes Conjuntos Residenciais e a Constituição da Metrópole de Lisboa (1955-2005)*. Lisboa: Fundação Calouste Gulbenkian e Fundação para a Ciência e Tecnologia.
- OHNMACHT, T., MAKSIM, H., BERGMAN, M. (eds.) (2009): *Mobilities and inequality*, Aldershot: Ashgate.
- PADEIRO, M. (2012): "Conciliar os transportes e o ordenamento urbano: avanços recentes e aplicabilidade em áreas metropolitanas portuguesas". *Cidades, Comunidades e Territórios*, Vol. 25, pp. 1-20.
- PADEIRO, M. (2014): "The influence of transport infrastructures on land-use conversion decisions within municipal plans". *The Journal of Transport and Land Use*, Vol. 7, No. 1, pp: 79-93.
- PADEIRO, M. & COSTA, N. (2013): "L'Aire Métropolitaine de Lisbonne à la croisée des chemins". *Le Globe – Revue Genevoise de Géographie*, No. 153, pp. 7-22.
- PEREIRA, M. & SILVA, F. (2008): "Modelos de Ordenamento em confronto na área metropolitana de Lisboa: cidade alargada ou recentragem metropolitana?". *Cadernos metrópole*, No. 20, pp. 107-123.
- SANTOS, S. (2014): *Desigualdades socioterritoriais e mobilidade geográfica: um retrato da Área Metropolitana de Lisboa*, CIES e-Working Paper n° 195/2014. <http://hdl.handle.net/10071/9882>
- SANTOS, S. (2017): "Mobility and Spatial Planning in Lisbon Metropolitan Area". *Finisterra - Revista Portuguesa de Geografia*, Vol. 52, No. 104, pp. 57-72.
- SALGUEIRO, T. (2001): *Lisboa, Periferia e Centralidades*. Oeiras: Celta.
- SCHEINER, J. (2010): "Social inequalities in travel behaviour: trip distances in the context of residential self-selection and lifestyles". *Journal of Transport Geography*, Vol. 18, No. 6, pp. 679–690.
- SCHEINER, J. (2014): "The gendered complexity of daily life: Effects of life-course events on changes in activity entropy and tour complexity over time". *Travel Behaviour and Society*, No. 1, pp. 91–105.
- SCHEINER, J. & HOLZ-RAU, C. (2013): "A comprehensive study of life course, cohort, and period effects on changes in travel mode use". *Transportation Research Part A: Policy and Practice*, No. 47, pp. 167–181.
- SHEPPARD, E. (2002): "The Spaces and Times of Globalization: Place, Scale, Networks, and Positionality". *Economic Geography*, Vol. 78, No. 3, pp. 307–330.
- SILM, S., AHAS, R., NUGA, M. (2013): "Gender differences in space–time mobility patterns in a postcommunist city: a case study based on mobile positioning in the suburbs of Tallinn". *Environment and Planning B: Planning and Design*, Vol. 40, No. 5, pp. 814–828.

- TORRADO, J., ROMANÍ, J., SUSINO, J. (2018): "Género y commuting en las regiones urbanas andaluzas. *Revista Internacional de Sociología*" Vol. 76, No. 3, pp. e106.
- URRY, J. (2007): *Mobilities*. Cambridge: Polity Press.
- UTENG, T. & CRESSWELL, T. (eds.) (2008): *Gendered Mobilities*. Aldershot: Ashgate.