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Social Exclusion Related to Mobility in Villavicencio from a Gender Perspective

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Abstract

Objectives: This research analyzes daily social exclusion related to mobility from a gender perspective in Villavicencio City to find the inequalities between men and women and propose guidelines to diminish it. **Methods/Analysis:** This research uses quantitative and qualitative methods: quantitative by doing regressions with information from a mobility survey (2012) to find the broad situation of the objective and qualitative by doing gender separated focus groups to make an in-depth analysis based on findings of the quantitative methods and Church exclusion dimensions. **Findings:** Authors find that in Villavicencio men and women have different experiences of social exclusion related to mobility. Findings show that women are significantly more impacted by mobility: number of trips depending on strata, age and gender, as well as differences on the means and motives of transport depending on whether they are male or female. Finally, the role that society has established for women in relation to the care of others has created the concept "Mobility of care", which is being ignored by decision makers and is aggravating the daily mobility-related social exclusion for women. The relation of mobility with the urban spaces and the occupation of it by the women and their people in care in Villavicencio is the reason it happens here. **Application/Improvements:** Latin-American cities must plan their mobility using mixed methods to understand the problems of all the population, seeking to include gender perspectives since women are more negatively affected by daily social exclusion related to mobility.

Keywords: Daily Mobility, Gender Perspective, Mobility of Care, Social Exclusion

1. Introduction

Social exclusion is defined as the process by which individuals or groups are denied resources, rights, goods and services, and are totally or partially segregated from full participation in the society in which they live, socially, economically and politically[1]. Disadvantages in mobility have been identified to intensify the process unevenly according to the socio-spatial context and to perpetuate the exclusion of individuals[2]. Society, academic circles and public institutions are aware that improving mobility is a solution in search of spatial justice because it reduces social exclusion from multiple dimensions[3,4]. Spatial injustice is understood as the unequal territorial distribution of resources, services and programs of a city, where the presence of a formal city is reduced and generates a loss of citizenship of its inhabitants. Thus, improving mobility becomes the instrument through which it is possible to obtain the various services offered by the city in an accessible way[5]. The paradigm of daily mobility understands it as the ability to negotiate money, time and space to comply with daily practices, maintain relationships and generate places that people require for their social participation[2] and emphasizes the importance of identifying the individuals or groups involved in them. Therefore, the importance of knowing their characteristics, such as gender, should be highlighted, since there may be social factors that do not guarantee equal access for all citizens, making some more vulnerable[2,4].

This research adopts the gender perspective because it implies recognition of the existence of inequalities between

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men and women given their gender. Its approach requires, among other things, to understand that such inequalities are part of the whole social fabric, which is why mobility and public space are also scenarios of inequality. Studies that seek to identify the impact of transport on social exclusion have found that women are a population that experiences this exclusion with greater intensity[1,6]. Therefore, it has become an issue of high importance in the agenda of most countries in the world. Within this framework, Habitat III covered gender disparities as one of the main challenges to be tackled in cities 20 years from now. The Development Bank for Latin America (2016) emphasizes that, for Latin America, transportation is not gender-neutral; men and women have different social and economic roles in society, which are associated with patterns of use and displacement, access and specific transport needs. Thus, the organization of land use, physical layout and the design of the transport system infrastructure do not affect them equally.

This research is carried out in the city of Villavicencio shown in Figure 1. Gender inequality and socio-spatial segregation has been identified as one of the medium and long-term challenges, as well as being committed to

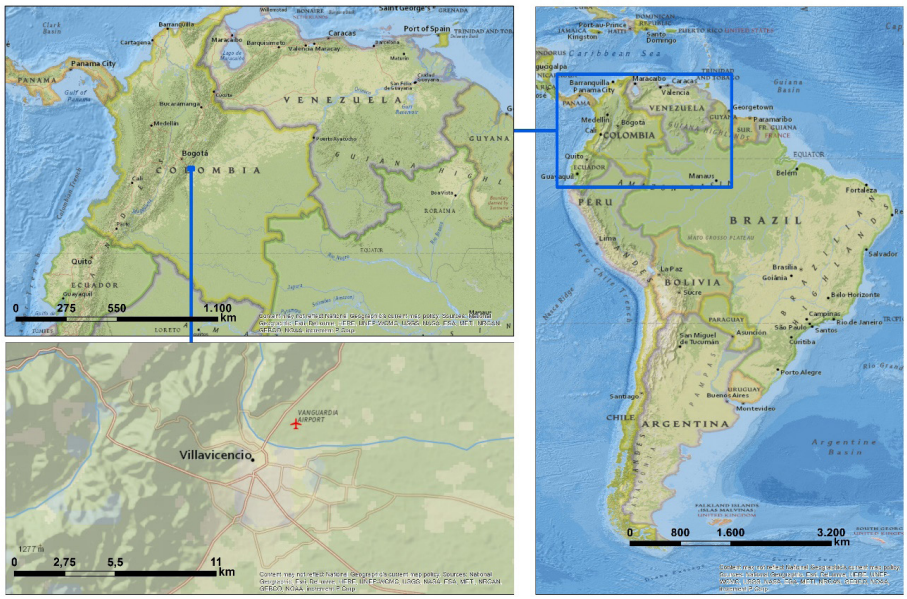

Figure 1. Villavicencio city location.

generating strategies to solve it[7]. Undoubtedly, one of the constant challenges of these strategies is in the identification of the relationship between problems and solutions, since there is no clear diagnosis of them.

Villavicencio is an intermediate Colombian city, capital of the department of Meta, located in the foothills of the eastern mountain range at 467 MASL, and has an approximate area of 1,328 km^2. According to population projection data of the National Administrative Department of Statistic (DANE), by 2018, the municipality of Villavicencio is home to 516,831 inhabitants, out of whom 95% are settled in urban areas (492,724 inhabitants) and 5% in rural areas (24,107 inhabitants)[8]. Population distribution according to gender is 48.8% men and 51.2% women. Villavicencio is considered to have a strategic location at the national level, given its proximity to the capital, 86 km, connecting the central area of the country with the largest source of hydrocarbons. This city is considered the commercial capital of the eastern plains. Its main economic activities revolve around livestock, agriculture and mining. Commercial dynamics have been reinforced with the progressive improvement of roads that allow channeling products to the center of the country.

The disadvantage of transport is a concept by which social exclusion is related to mobility. It refers to relative or absolute differences in accessing basic services offered by a city through a specific system or mode of transport[6]. It usually considers only motorized means of transport, while currently mobility involves the analysis of all modes of transport available, including their interaction with urban space. Therefore, it is necessary to identify and situate in the paradigm of daily mobility, understood as a social practice[2-9], comprehending: 1. Trips made in all

means of transport; 2. Trips made with all existing reasons, not only related to work, study or health issues; 3. Public space as a mobility variable; and 4. Mobility and its interaction with public space understood as a generator of subjective experiences.

The paradigm shift also conceives that mobility must be planned so that individuals can make all trips required to fully develop in a society[10,11]; this includes trips with reasons for care, recreation, leisure, cultural activities, among others, activities that decrease the social exclusion of individuals in a differential manner depending on the characteristics of each one[12]. Within this paradigm, it has been proposed that mobility intensifies social exclusion multidimensionally in 7 categories[1]: 1. Physical exclusion, due to physical limitations of people; 2. Geographical exclusion, due to the coverage of the transport infrastructure network; 3. Institutional exclusion, due to access problems; 4. Economic exclusion, due to poverty; 5. Time-based exclusion; 6. exclusion based on fear, related to a fearful experience when using a mode of transportation; and 7. Exclusion in space, associated with social participation. However, many of the studies that analyze social exclusion are carried out in contexts of the global north, where the analysis focuses mainly on hypermobility through the possession of the automobile[13,14]. Exploring the links of social exclusion with daily mobility in Latin America invites us to analyze modes of transport such as motorcycles, informal transport, collective public transport, walking, and cycling; the interaction of each mean with the urban space; and the relationship and impact according to population characteristics. This latter one has received little attention and, given the growing concern to include a gender perspective, it is considered important since several authors indicate that they are a differentiated population group in terms of needs, vulnerability, and social exclusion related to mobility, which increases in the Latin American cultural and social context.

The ideas presented show that transport is not gender neutral, so much so that the perspective of women has been key in the paradigm shift towards daily mobility, since they develop different roles in the social and economic structure and therefore have different needs, demonstrating that it is not restricted to motorized modes and that transportation systems were inefficient and unsustainable[9,15]. The aforementioned, linked to the increase in the presence of women in academia and in public positions, made it possible to identify these needs and make visible that transportation planning was not inclusive with part of the population[16]. In spite of this, transport in Latin America is still planned based on destinations chosen for economic reasons, which often benefits men more than women. Therefore, the accessibility of women and their participation in society is inhibited because their destinations are not planned. Women perform multiple daily trips associated with reasons related to care work[9], a type of unpaid work dedicated to caring for dependents and related to home maintenance[16]. "Mobility of care" has been proposed, where care is included as a category of travel, given that it is undervalued in different reasons such as work, shopping, walking, and recreation, medical, among others. Its trip percentage is important, especially for women,[16] making it a matter of gender difference. Likewise, gender is not alien to the interaction of mobility with urban space. Women live and feel space differently from men and although personal safety is important, it is not the only difference. Spaces are occupied for different reasons, at different times, with different frequency, with different people, among others. Furthermore, historically, men have been the ones in charge of transport studies and planning in the cities[11]. There is no representation of women in planning and there is no representative participation in projects, having their needs become invisible, creating problems in city management for its whole population.

The objective of this research article is to identify if there is any degree of social exclusion related to mobility that is differential between men and women in the city of Villavicencio, and to define guidelines for proposing public mobility policies that contribute to the reduction of these differences. Following the introduction, the methodology used is described, results are shown and their analysis and conclusions are discussed.

2. Methodology

The research was developed through a mixed methodology: 1. Quantitative, through the realization of statistical models, 2. Qualitative, through the study of focus groups with social cartography. The methodological approach used allows a broader perspective on the issue, obtaining its panorama from quantitative methodology and a deeper comprehension through qualitative methodology.

2.1 Quantitative Method

The purpose of the statistical models was to identify the relationship between variables of the individuals with trip characteristics to obtain an approximation to the phenomenon of social exclusion related to mobility

from a gender perspective. It was carried out through the mobility survey of 2012, which contains statistically representative information on households, vehicular tenure by household, socioeconomic status of people and their homes, and on trips made by people. The variables of number of trips, immobility (motility), travel motives and means of transport were analyzed with the sociodemographic variables of age groups, socioeconomic stratum, educational level, main activity and the binary gender.

2.2 Qualitative Method

Focus groups allow deepening research on social exclusion related to transport from a gender perspective. This is a data collection technique through a semi-structured group interview, which revolves around a topic proposed by the researcher seeking the emergence of reactions and experiences on the part of the participants[17-18]. The purpose of the focus groups was to broaden the dimensions analyzed and identify the impacts that mobility has on social exclusion from a gender perspective. Four focus groups were carried out, separated by gender and without age discrimination in "Porfía", located on the outskirts of Villavicencio. Figure 2 shows the location of the neighborhood where the process was carried out. The methodology was developed through the question: What have you stopped doing because of mobility? And it focused on the 7 dimensions mentioned. Additionally, a social mapping exercise was carried out shown in Figure 3, giving a spatial and collective dimension to the places where people move, and in which social exclusion related to mobility happens. All the information was transcribed and codified through the NVIVO software, using the Churchill categories.

Figure 2. Neigborhood "Porfia" location.

Figure 3. Social mapping.

3. Results and Discussion

Socioeconomic distribution is considered by stratum, which can be classified according to the economic resources of people in a household, where: stratum 1 is low-low, 2 is low, 3 is medium-low, 4 is medium, 5 is medium-high and stratum 6 is high. Strata 5 and 6 were grouped as a high stratum for analysis. More than 50% of households are strata 1 and 2 and 94% are stratum 3 or lower shown in Figure 4. Spatially, there is a centralized distribution of strata 5 and

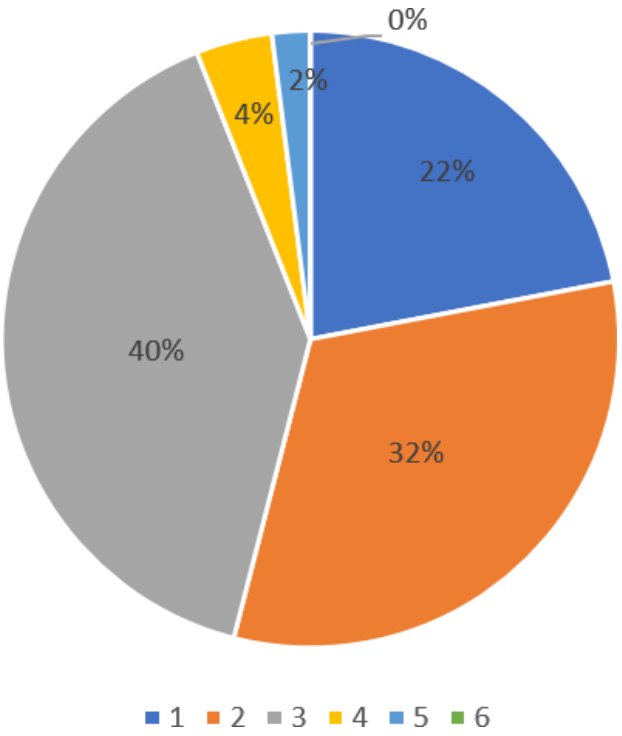

Figure 4. Villavicencio's population distribution according to socioeconomic stratum.

6, and homogeneous strata 1 to 4. During a field visit, it was observed that strata 1 and 2 are located in the periphery and in areas with environmental instability such as riverbanks or wetlands. "Porfía" is a stratum 1 neighborhood located in the south east of the outskirts of Villavicencio. This neighborhood was built approximately 26 years ago by the inhabitants themselves, which means that its origin is informal. The neighborhood is stigmatized by violence and it is currently a commercial center of informal urban developments that have taken place around it.

Different studies consider that one of the main differences regarding gender and mobility is the realization of trips, both in number and motility, which is the non-possibility and/or ability to perform them[9,19-20]. On motility, results show a significant difference in the percentage of population that does not travel according to gender and stratum shown in Table 1, where there is a proportional relationship between the stratum and the non-completion of trips by women, indicating that in the lower strata there is a greater number of women who do not travel, associating it with the roles they fulfill.

Table 1. Mobility by gender and strata

Strata	No trips		Trips	
	Female	Male	Female	Male
1	64%	36%	50%	50%
2	62%	38%	51%	49%
3	61%	39%	52%	48%
4	61%*	39%	51%	49%
5 y 6	56%	44%	50%	50%

Notes: Significancelevel 10%. *Not significant

An analysis was also made of the number of trips, including the working-age population, grouped into young adults (16-30), medium adults (30-45), adults (45-70) and older adults (>70) shown in Table 2, in order to demonstrate the effects of age on the number of trips made. It was found that women travel less than men in almost all strata except for stratum 4 where women make more trips and that older women travel more than older men regardless of the stratum.

Table 2. Trips by stratum, age groups and gender

Age	Strata	1	2	3	4	5 y 6
16-30	female	2.11	2.22	2.27	2.58	2.19
	male	2.23	2.32	2.34	2.35	2.40
30-45	female	2.20	2.22	2.38	2.51	2.20
	male	2.23	2.40	2.45	2.47	2.78
45-70	female*	2.13	2.16	2.28	2.35	2.26
	male	2.22	2.35	2.38	2.37	2.27
> 70	female	2.09	2.16	2.19	2.33	2.50
	male	2.02	2.06	2.12	2.06	2.00

Notes: Significance level 10%. *Not significant

An analysis was made considering the reasons for trips differentiated by gender shown in Figure 5. It was found that men double trips for occupational reasons (work, business, study and transshipment) while women double the trips with personal reasons (personal, shopping, others). It is not possible to identify the reasons behind the trips made by women; however, according to the theory of mobility of care and during focus group conversations, they can be associated to the reason for care. Therefore, it is important to add travel associated with care as a reason for travel, appreciating that they can go unnoticed and many of them can be trips with similar characteristics.

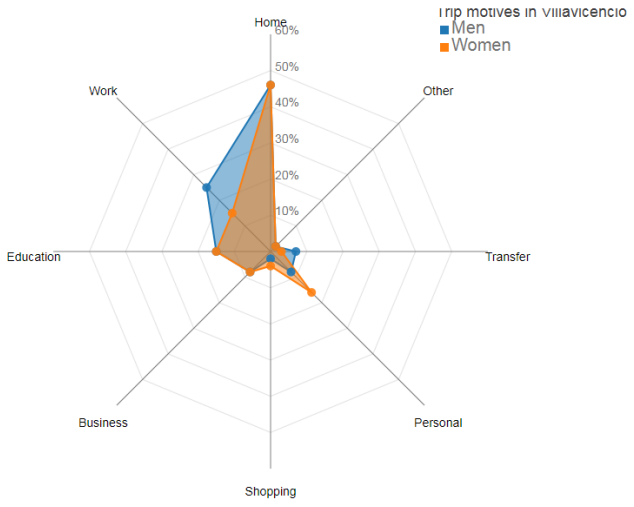

Figure 5. Trip purpose by gender.

An analysis was made of the means of transport used, also based on the mobility survey. The following percentage distribution was identified: 33% in collective public transport, 25% on foot, 13% in motorcycles, 9% in taxis, 6% in private vehicles, 6% in bicycles and the remaining percentage is distributed

in others shown in Table 3. Regarding the observation of journeys by gender, the greatest variations are shown in the individual means, such as bicycle, private car as driver and motorcycle, where men outperform women 345%, 87% and 50% respectively. Women on the other hand outnumber men in the modes of public transport, automobile as a passenger, taxi and on foot, 38%, 36%, 21% and 10%, respectively.Taking into account reasons and means used, it was possible to appreciate that there is a representative difference according to gender. Women use public transport more with both reasons but mainly for personal activities. They make twice as many trips as men for this reason. Men outnumber women on trips in private modes such as bicycle and car, mainly for trips with occupational reasons. This not only indicates that there is a gender inequality in how they mobilize but that women move in a more sustainable way. Through the mobility survey there are important differences in terms of gender, social exclusion and mobility: people from lower strata travel less, and even less if they are women; and women have different patterns of travel considering their motives. From this data, the causes behind this were still unknown, and therefore, focus groups were carried out.

Table 3. Trips by purpose mean and gender

Mode	Occupational		Personal	
	Female	Male	Female	Male
Walk	37,251	40,394	16,620	7,350
Bike	2,871	16,731	1,438	2,519
Motorbike	15,159	26,420	7,057	7,020
Car	6,899	12,612	4,984	2,490
Taxi	8,769	10,848	13,079	7,078
Transit	42,187	37,509	43,619	16,399
Intertown*	367	1,033	150	196
Special	4,397	5,749	266	60
Other*	2,088	3,908	1,734	1,970
Total	119,987	155,204	88,946	45,084

Notes: Significance level 10%. *Not significant

When inquiring in the focus groups about the impacts of mobility in the exacerbation of social exclusion, it was identified that women perceive a greater impact in the dimensions of space and fear, while men are impacted by the physical and geographic dimensions. Care was identified transversally as one of the key issues to analyze around the differences between genders that identify mobility inequalities. To synthesize, a qualitative analysis was carried out through the coding of interviews with each focal group according to the dimensions through the NVIVO software. Figure 6 shows the percentage in which each dimension was mentioned by gender group.

The answers allowed to identify common points such as: 1. Time-based exclusion, since there is only one access road to the neighborhood, mostly congested, with significant deficiency in the frequency of buses; 2. Economic

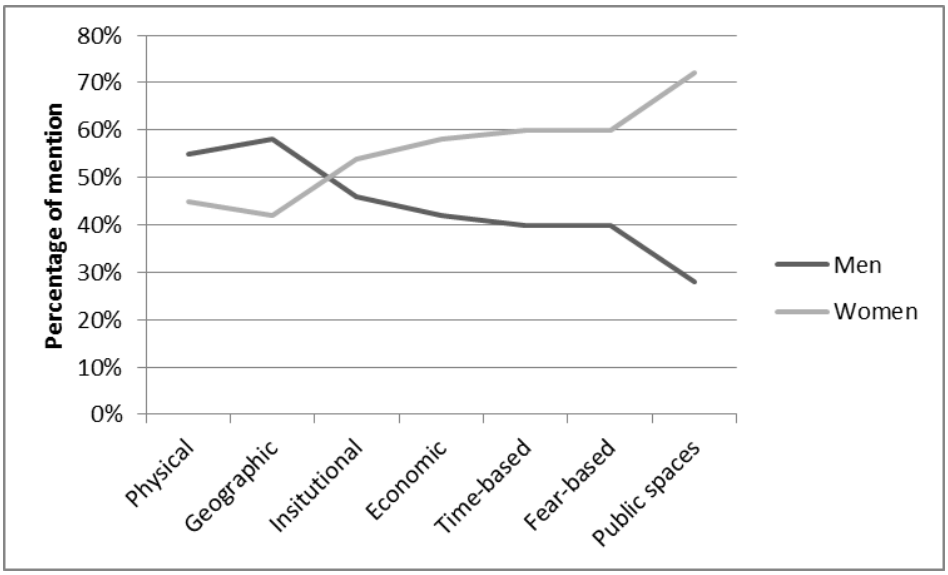

Figure 6. Percentage in which gender-based social exclusion was mentioned.

exclusion, due to the costs of other means of transport such as taxi or even informal transportation; 3. Low geographic exclusion due to the fact that the focus group considers that there is good public transport coverage; 4. And institutional exclusion, mainly due to the difficulty of access to health services, which is intensified in women. In the same way, gender-based differences were identified across the dimensions of fear and space. They differentiate on fear because women are more affected by personal safety and by men through road safety, which is linked to the dimension of space due to the fear they experience: it isolates women from space, hindering their social participation.

To explain this, a social mapping process was carried out in order to spatially locate the effects of mentioned dimensions shown Figure 7. Through this method, it was identified that women move more in proximity, while men move more towards the city, and that these trips are carried out in greater proportion in public transport and walking, respectively. Women choose to stay for reasons such as: 1. Insecurity, 2. Neighborhood platforms that invade space, by formal commerce and street vendors, and 3. Parks or plazas occupied by people perceived as dangerous. In this sense, personal insecurity is modifying mobility patterns, inhibiting the social participation of women, affecting the people depending on them as well. In the words of one of the participants: "My mom tells me that I jail my kids. They come straight back home from school and from there to the foundation or to study music. Just those specific places, and locked at home. Otherwise, there is no other place".

Figure 7. "Porfía" neighborhood streets and public space.

Care becomes relevant in the analysis of gender-based differences, highlighting that since the beginning of focus groups it was a transcendent topic: firstly, the women participating in the discussion were accompanied by their sons and daughters shown in Figure 8, while the men in their groups were alone; secondly, women had to consider the people they care for when planning their trips, while men mainly considered their work activities; and finally, spaces were identified in which women were excluded, which are considered important for care activities.

Figure 8. Women focus groups.

Hence, there is an isolation of the population in the space intensified by the impossibility of carrying out activities related to care, bearing in mind that, in neighborhoods like Porfía whose origin is informal, meeting and leisure places are reduced to the public space, which is key to full development in society, and is also where power relations that reproduce gender inequality are configured. For example, one of the women who attended the focus groups mentioned: "Sometimes I like to go to my friend's, but the thief behind you is always there. He might think you have money and then comes the stab. One doesn't go anywhere anymore". People also said they felt institutionally excluded, mainly because of the lack of access to health, and differentially from gender, given the role of care. It was stated that, to go to the doctor or emergencies, it is necessary to travel to the city center, mainly in public collective transport. While men only go when they require it, women go as companions of family members, and when they are the ones who get sick, complications arise as they need to look for other carers who might take care of their children or other people who rely on them. In this way, a relationship is formed between social exclusion from mobility with urban space and

care, which is perpetuating gender inequality and current transport plans are not addressing it.

4. Conclusions

Current methods of collecting and analyzing data do not allow a full understanding of the differential needs of the population, making it difficult to create planning strategies that solve issues for different population groups in society. Particularly differential impacts on women have been identified around social exclusion from the paradigm of daily mobility for care reasons, related to different dimensions of exclusion such as access to institutions, exclusion based on fear, and space-based exclusion.

The mobility of care is associated with the role that women play in society as caretakers of family and other members of society. It is not always an economically remunerated activity, but it is undoubtedly an activity that requires mobilization and has certain characteristics and particular needs that are not being identified by decision makers. The mobility survey is an example by not including travel reasons associated with care. This generates an inequality in planning that is reflected in economic and social costs, for example, mobility in public space. This is a place that women should frequent for their own reasons and those they care for, making trips on foot. If the role that was assigned to women is fulfilled under constant threats and harassment during its implementation, it ends up isolating children and all those under care, and limits the possibility of increasing relationships and social capital, perpetuating exclusion, where women remain as the most vulnerable ones.

The identification of these inequalities must be carried out through the acceptance of gender differences and the development of mixed methodological tools that make them visible. The power to make them visible is to contribute for their reduction, increase access to services offered in the city, contribute to more sustainable mobility, and generate economic benefits for society and public transport systems that are in crisis in the country.

5. Aknowledgments

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