An example of low-medium income working women in Mexico City: How can their vision reshape transport policy?

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ABSTRACT
This paper focuses on mobility and accessibility in Mexico City especially for low-medium income working women using a qualitative approach. Through in-depth interviews, we discuss different mobility and transport issues to understand what the main factors that influence their travel patterns are, how the different services are perceived and evaluated, and what their daily constraints are. Our final aim is to understand what is still missing and to discuss the following steps regarding transport policy in Mexico City and its Metropolitan area through a gender perspective. Interestingly, even if there are important gender issues raised by participants, they have assumed these issues as being part of their daily life, modifying their transport patterns accordingly. They also perceive that there are many problems which concern the transport system in general, others related to the complexity of the metropolis and the lack of civic-mindedness. The results also show a huge gap between women’s needs, depending on their income and place of residence.

Keywords: transport disadvantage, social and gender inequalities, transport and land-use policy, qualitative methods
INTRODUCTION
As it is well known, transport projects and policies have an important social component: Through transport infrastructures, citizens access their daily activities and services, like employment, education, health, and so on. However, the use and attractiveness of such infrastructures is perceived differently depending on wage levels and gender. In this respect, the transportation field is well known to be a male-dominated sector where policies might tend to be male oriented. For example, in 2003 the UK Social Exclusion Unit accepted that many past transport and land-use policies increased different social inequalities (1).

Even if nowadays there is more awareness of the social dimension of transport, there is a lack of awareness of the gender-differentiated and gender equality impact of transport policy and provision, along with a lack of knowledge during implementation by policy makers (2). In fact, the integration of gender issues should be taken into account in all phases of a transport project, to show an understanding of the socio-cultural and biological differences between men and women in daily life.

There are many interesting studies regarding gender issues in transportation. For example, the Scottish study from 2000 (3) focused on transport providers. There, it is stated that transport services are in need of a change in order to ensure that transport providers take into account key issues in order to improve transport services for women, since they are experiencing restrictions and barriers to their travel.

The TRANSGEN report (4) identifies that the problem is the lack of recognition of a gender dimension when planning. For instance, when evaluating projects and calculating the value of time, planners forget the gender perspective in their cost-benefit analyses which results in misleading estimations. Yet, there is a lack of methodologies which incorporate gender analysis in transport policy and planning, through alternative tools such as “gender impact assessments”, “monitoring, evaluating and auditing”, and gender disaggregated statistics” or others, which would provide valuable information and improve results (5; 4).

In the case of Mexico City, it has experienced multiple changes regarding transport infrastructure within the last two decades. For many people, all these changes have modified their use of transport (both public and private) and improved their accessibility to services. For others, there has not been such an improvement. Herein we discuss mobility and accessibility in Mexico City especially for low-medium income working women using in-depth interviews. Our final aim is to understand what is still missing and to discuss the following steps regarding transport policy in Mexico City and its Metropolitan area through a gender perspective.

This paper is divided into 8 sections. After the introduction, section 2 provides an overview of the literature. Next, section 3 presents the characteristics of the case study. Afterwards, the objective, methodology and a sample are presented. Section 7 presents the main results and finally, section 8 presents the concluding remarks and the final discussion.

LITERATURE REVIEW
There are different concepts and terms that are highly associated with transport-related exclusion: Lucas (6) exposes a comprehensive discussion on each of these terms. In the next paragraphs some of these topics are discussed.

Social exclusion has received more attention after the UK transport Exclusion Unit Report in 2003. It is about the lack of resources and opportunities available to take part in daily
activities, which may be of different types: social, economical, cultural and so on. It limits the integration of an individual into a society and therefore damages both the individual and the society as a whole (7; 6).

In the international literature, transport poverty has been a controversial term, being especially difficult to define. However it is clear that the combination of low income and poor accessibility highly diminishes the opportunities for a certain sector of the population. As Lucas (6) graphically describes, transport poverty has two main components, social and transport disadvantage which interact directly. It limits accessibility to activities and services, to economic resources and to social networks and this situation may end up leading to social exclusion. For this author, the approach is moving from the traditional analysis of transport provision to a social policy perspective, to become more focused on people’s needs.

Transport related social exclusion implies that people have limited opportunities to participate in different every day activities due to their restricted accessibility to transport, mainly because the urban environment is designed for people with high mobility and accessibility opportunities (8).

Other visions also put the focus on spatial mismatch. Spatial mismatch is related to residential and labor market opportunities, which have gone through a disconnection process (9). Poor people tend to live in the fringe areas, with limited accessibility to close jobs, and then they have to incur high commuting costs and time restrictions in order to access the job market.

On the other hand, transport poverty is related to the lack of time availability to carry out daily activities. Here, literature has shown that many differences arise, men tend to make single-purpose trips using a better mode of transport, whereas women tend to have complex travel patterns and trip chaining in order to carry out their activities and take care of the family and many household tasks (10).

Gender mobility is in fact, heavily affected by these topics. Women face different problems to get access to services, economic activities and other social activities while at the same time taking care of the household or being responsible for many activities related to children. As mentioned in the previous section, many studies have coped with this issue; however, in developing countries, as already highlighted by different authors (11; 12), this topic has not received enough attention.

CHARACTERISTICS OF THE METROPOLITAN AREA OF MEXICO

Mexico City is located in the center of Mexico. Surrounded by two different States, the Estado de Mexico covers most of the borders around Mexico City, and in the south the State of Morelos closes the ring around Mexico City (figure 1).
FIGURE 1 Location of Mexico City and its Metropolitan area (left) and place of residence of women interviewed for this study (right)
It is important to clarify that Mexico City itself has “only” 8,851,080 inhabitants. However the metropolitan area expands beyond the Mexican capital, covering part of the Estado de Mexico and the state of Hidalgo. According to the INEGI, the population of Mexico’s metropolitan area is 20,116,842; which makes it one of the biggest in the world.

Sustainable urban mobility is in the spotlight nowadays because it is seen as an important factor towards social and economic development. In this respect, it is currently agreed that Mexico City, as many other Mexican metropolitan areas, faces important challenges, like urban congestion, pollution, mobility costs, time spent in commuting, accident rates, unsafe transport, deficient public spaces, lack of efficient and secure public transport, and so on, which especially affects low income people including, women, children, the elderly and other people in risk of exclusion.

Socio-economic characteristics
The metropolitan area of Mexico City had the following characteristics in 2010:

- Urban area: 185,291 (hectares) and a urban density equal to 108 (inhab/hecatare)
- Trips per person per day: 30,771,987, of which 73% were made by public transport and 27% by private transport and taxi.
- Housing: 5,194,093 houses and housing density was equal to 28.0 (houses/hectare)

According to the ITDP, in the metropolitan area, the percentage of households with at least one car varies according to the municipality. On average, in Mexico City this is equal to 49%, with the highest value of 64% in the Miguel Hidalgo Municipality (“Delegación”) and the lowest in Milpa Alta with 26%. This value decreases for the municipalities in the metropolitan area that belong to the “Estado de México” with an average rate of 35% and a minimum value of 10% in the Ecatezingo municipality and a maximum of 47% in Atizapán de Zaragoza.

Mobility constraints especially affect low income people living in the outskirts of Mexico, who have less resources and alternatives to move. It has been reported that transport expenses are the second highest necessity where families spend their income (18.5%), right after nourishment, beverages and tobacco.

The ITDP states that 95% of high income households have at least one car, hence the probability that they use public transport to commute is really low. For middle and medium-low income households, the rate is approximately 60% and the use of public transport is higher; whereas 75% of the low income population uses public transport. Motorization rate has notably increased in Mexico between 2000-2014, 144% at a national level, 89% in Mexico City, and in the states part of the Metropolitan area: 160% in Hidalgo and 309 in the Estado de Mexico.

There are huge differences in the Metropolitan area according to income. According to the ITDP in 2010, Mexico City had an average of 20% of people who were in the high income class, 59% in the middle income class and 21% in the low income class. In the Cuauhtemoc Municipality, where this study took place (central area in Mexico City), there were 22% of high income people, 57% were considered middle class and 21% were low income.

However in the municipalities which are part of the metropolitan area in the Estado de Mexico, the low income population increased by 40%, whereas middle class income was equal to 47% and only 13% were high income.
The ITDP (16), using information from the INEGI in 2009, informs that, from total employment in the Metropolitan area (3,451,633), most of the employment is located in Mexico City, 68%, (manufacture 522 thousand; commerce 653 thousand; and services 1.175 million), particularly in the following municipalities: Cuauhtemoc (497 thousand), then Miguel Hidalgo (316 thousand), Iztapalapa (244 thousand) and Benito Juarez (241 thousand). The Metropolitan area belonging to the Estado the Mexico consists of only 32% of total employment (manufacture: 427 thousand; commerce; 376 thousand; and services 298 thousand).

Finally, the OECD (18) reports that in 2013, the gender, full-time wage gap\(^1\) in Mexico (as a country) was equal to 15.43%. This information is not available for the metropolitan area. Moreover, the World Bank (19) informs that in Mexico, in general terms, the percentage of credit cards for people aged fifteen or above in 2014 was equal to 14.3% for women and 21.6% for men, whereas debit card use for women is equal to 20.8% compared to 23.9% for men. Unfortunately, these values do not take into account income levels. Moreover, women are more likely to fall into informal employment than men, for example, in 2013 this value was equal to 58.6% compared to 50.5% for men.

Urban and Land Use Planning

The expansion of the metropolitan area started when a huge migration wave occurred around the 50s. People from different States came to Mexico City looking for new job opportunities and a wide range of services. This was an unexpected situation for the local authorities who were not prepared for the implications of this disproportionate number of newcomers. Hence, urban infrastructure was not sufficient for the sudden needs of the City. Here, two different directions have taken place. For example, as mentioned by Macadet (20), the expansion of Mexico City increased notably from the 50’s to the 90’s where many areas of central Mexico City were left by several families who chose to live in detached or semi-detached houses on the outskirts of Mexico City, emulating the rich, Mexican people. Many of these areas had one single land use (residential). Therefore, the central area, such as the “Delegación Cuauhtemoc”, experienced a social decline accompanied by a physical degradation and downturn of image and activities.

On the other hand, people with lower economic resources have been forced to move to the outskirts of the metropolitan area. Social housing is more a private business, where private real estate companies buy cheap ex-rural areas, which they use to build new lower-class neighborhoods with minimum services. There, jobs are mainly nonexistent, public transport services are scarce, and residents need to use private transport to commute to other areas for main activities. According to different studies, people living in these areas would use 25% of their economic resources for commuting. As a result, many of these families have simply abandoned their homes in order to live in areas with more opportunities (14).

Macadet (20) also states that since the 1990s thanks to urban policies, economic activities have increased and middle class people have moved back to the central area of Mexico City. For example, The “Colonia Condesa” and the “Colonia Roma”, two neighborhoods in the Cuauhtemoc area, have experienced an important revival. Nowadays they have been converted into trendy districts, where once they were left as ruins. One may still see some buildings that are in abandoned conditions. However in general terms, these neighborhoods have been undergoing\(^1\) Defined as the difference between male and female median wages divided by the male median wages.
significant gentrification processes. In the Cuauhtemoc area, some middle to high class neighborhoods coexist with low class, highly populated neighborhoods.

Overall, the lack of a consistent planning policy regarding the expansion of the Metropolis, has led to it being presented as a monocentric form, where economic activities are concentrated in certain central areas. In Mexico City, four central areas (Delegaciones in Spanish) which account for 19% of the total population in the City, generate 53% of the formal employment and average wages exceed five times the average wages in the peripheral areas (14). This statement explains why so many people commute every day to the central areas of Mexico City. Moreover, many areas do not have a mixed-land use, but a unique land use, therefore, other activities, like recreation or working opportunities are located in other places, increasing the number and length of trips (14).

Transport planning and policy

After many years of a do-nothing transport policy, Mexico City has experienced multiple changes in the last two decades. These changes started soon after the Mayor of the capital was directly elected by the citizens in 1997. Before, the Mayor was directly appointed by the President of the Country, which limited the interest in people’s needs. Huge investments in road infrastructure have been part of these changes.

Many different new transport projects started after 2000. For example, new urban highway roads (“Segundo piso”) (21), five BRT lines (22) in Mexico City and three in the Estado de México “Mexibus” (14), and a bike sharing system (23). According to the SEDEMA (24), Mexico City has reached 170.11 km of bike lanes. Moreover, an agreement was made between the Federal government and the Estado de México and Mexico City to promote the suburban rail line (25), inaugurated in 2008. They also built a new metro line, called line 12 “línea dorada”. There have been some projects that have been more successful than others, for example, the problems of the last metro line 12 (26) which was until recently partially closed due to construction problems. Lately, in some areas, parkimeters were implemented to legalize and manage parking areas while avoiding informal charging (27). In the past few months, Uber was officially permitted to operate by local authorities (28).

It has been proven that huge investments in road infrastructure in the past have increased the use of private transportation and have not promoted the use of alternative modes of transport. Different reports illustrate that investment in infrastructures for private transport have been prioritized over other modes, even if public transportation is the most common means of transport (15; 14). Moreover, in Mexico, investment has never been associated with the idea that every single new transport infrastructure implies maintenance and conservation (15).

Climate emissions have been for many years in the spotlight, due to the fact that in Mexico city, emissions generated by vehicles represent around 60% of the total emissions of particles (PM10) (14). Hence, most of the efforts regarding transport policy were aimed at reducing emission levels. For example, in the 90s, the high emission levels triggered a program to limit emissions between 1995 and 2000, where different regional and national authorities were involved (15). More recently, in order to limit transport pollution levels, a program to ban cars to circulate one day per week was implemented, in operation from April 5th to June 30th 2016 (29).

The fact that there are many authorities concerned with the government of the metropolitan area and their transport management attributions sets hurdles to its management and
the decision making process. Unregulated transport operators and poor land and housing policies have further complicated the transport management and operations.

**Modes of Public Transport in the Metropolitan Area**

It is difficult to enumerate all the transport modes existing in the Metropolitan area apart from private vehicles. In general terms we may classify them into:

- Mini-bus (“Microbus”) and Vans (“Combis”)
- Trolleybuses
- Metrobus (BRT)
- Different types of buses (i.e. suburban buses)
- Metro and light rail
- Suburban rail
- Shared taxis
- Taxis & Fake Taxis (known as “taxi pirata”)
- Uber
- Shared bicycle systems

Public transport concessions are the backbone of mobility in the Metropolitan area of Mexico City. Around 44% of trips are made with Microbuses and 11% with taxis in 2007 (14). Especially in the case of Microbuses, concessions may be awarded to individuals owning one or more buses, known as man-bus (*hombre-camión* in Spanish), who give out buses to drivers that will in exchange pay a percentage of their income or a certain amount of money. This form of agreement aggravates competition for passengers, quickly diminishes the state of buses, creates accidents, traffic is affected as stops are unregulated; lack of professionalization of drivers and so on. Overall, the service is of very low quality. According to Molinero (15), regulation stipulates that Minibuses must have a vehicle age below ten years although in average there are minibuses on the streets with 25 years. Concessions are also awarded to taxis and suburban buses, although competition on the streets may not be so high.

**Mobility patterns in the metropolitan area of Mexico**

In the last decades, private transportation has been enforced by the lack of investment in public transport and promoted by important investments in road infrastructure (14). Moreover, car loans have been more easily accessible. The car provides security and it is a very important status symbol in Mexico (30). The effects of this policy are nowadays evident, as the average speed has dropped and in peak hours it is between 8 and 11 km/hr (14).

Some Origin-Destination (OD) surveys have been carried out in the Metropolitan area, for example those in 1979, 1984, 1994 and the one in 2007. There were some others carried out by private companies appointed by local governments, which are not always publicly available, for example the one carried out in 2004 for the Insurgentes Avenue (1). The same author mentions that there are other urban transport studies carried out by the mobility Department in Mexico City.

According to Islas Rivera et al. (31), the comparison of the 2007 and 1994 OD surveys, highlights the following results. First, public transport is the predominant transport mode, (one
private transport trip per four public transport trips) which is similar to the numbers presented by Molinero (15) for 2010: for the 30,771,987 trips a day, 22,540,587 were made by public transport and the rest by private cars and taxis (73% to 27%). However, car use increased from 4 million trips in 1994 to 6.3 million trips in 2007. Urban buses declined in importance between these years (-5%), although suburban buses increased their share from 3.5% to 7% in 2007. “Peseros” had a 46% share in 2007. The use of bicycles increased from 0.7% to 1.5% in 2007. The use of friendly modes like bicycles, metro-lines, light rail, and trolleybuses accounted for the 17% share in 2007.

OBJECTIVE

This paper covers an exploratory study to better understand the mobility and accessibility characteristics of medium to low-income working women in a metropolitan area. This study sheds light on population needs, their daily transport constraints and their perception about the different transport systems.

METHODOLOGY

Qualitative research is an important source of information. It brings about information that is difficult to obtain through quantitative research. Allender et al. (32) expose that rather than using qualitative research to generalize; it is useful to develop theories and hypotheses that may be tested by other studies. Qualitative methods show the causality of certain behaviors or issues.

This exploratory study makes use of personal, in-depth interviews to elicit information from women working or living around a focal point in Mexico. This pole covered areas in the central part of Mexico City, around the Condesa and Roma neighborhoods. Twenty two interviews with women were carried out.

As mentioned by Clifton and Handy (33), personal interviews may provide the same rich information as other qualitative analyses. The interviews were recorded and carried out by the author. This research has been complemented by other interviews of consultants, researchers, urban planners, taxi and Uber drivers, and other stakeholders, while also drawing on multiple sources of information, such as previous reports, newspapers, and direct observation. A case study approach was used to get a comprehensive research strategy and cover contextual conditions (34). Interviews were semi-structured, which allow the researcher to guide the conversation through a series of topics while allowing the interviewee to expand on certain topics as they feel the need to. The interviews were carried out before the transportation driver’s code 2016 was announced (35).

SAMPLE

Participants were selected in a pole in the Condesa and Roma neighborhoods, in the central part of Mexico City, where they work or come to carry out different activities. In order to contrast the results, some participants with medium to high incomes were also included in the interviews. The participants were approached by this author, who explained the scope of the study. The fact that a woman had the time to hear their point of view about their problems with transport in a relaxed manner, increased their likelihood of accepting being part of the study. Figure 1 shows the residence location of the participants.
### TABLE 1 Profile information from participants

<table>
<thead>
<tr>
<th>Interv. number</th>
<th>Municipality (or Delegación)</th>
<th>Age</th>
<th>Family status</th>
<th>Education level</th>
<th>Working hours</th>
<th>Driving license (L. yes)</th>
<th>Main transport mode</th>
<th>Commuting time (total per day)</th>
<th>Monthly transport costs (Mexican pesos)</th>
<th>Income category</th>
<th>Job</th>
<th>House/ Licensed income per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gustavo A. Madero</td>
<td>54</td>
<td>Head of household, lives with daughters, grandchildren and</td>
<td>Upper secondary education</td>
<td>15-21 h, five days/week</td>
<td>0 0</td>
<td>Public transport</td>
<td>1:20 hour</td>
<td>600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Alvaro Obregon</td>
<td>51</td>
<td>Married, lives with husband, son (=42 years old) and her</td>
<td>Upper secondary education</td>
<td>8-15 h, five days/week</td>
<td>0 0</td>
<td>Public transport</td>
<td>8:15 hrs</td>
<td>400</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ecatepec</td>
<td>37</td>
<td>Lives at parent’s house, has a kid (2 years old)</td>
<td>Upper secondary education</td>
<td>11-20 h, six days a week</td>
<td>0 1</td>
<td>Public transport</td>
<td>4 hours</td>
<td>960</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Iztapalapa</td>
<td>40</td>
<td>Head of household, lives with daughters, grandchildren and</td>
<td>Lower secondary education</td>
<td>8-17 h, six days/week</td>
<td>0 0</td>
<td>Public transport</td>
<td>8:25 hrs</td>
<td>458</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Cuauhtemoc</td>
<td>51</td>
<td>Head of household, lives with daughters, grandchildren and</td>
<td>Lower secondary education</td>
<td>8-17 h, six days/week</td>
<td>0 0</td>
<td>Public transport</td>
<td>5 hours</td>
<td>624</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Iztacalco</td>
<td>50</td>
<td>Single, lives alone</td>
<td>Lower secondary education</td>
<td>8-17 h, six days/week</td>
<td>0 1</td>
<td>Public transport</td>
<td>2:20 hours</td>
<td>240</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Tlalnepantla (Estado de Mexico)</td>
<td>51</td>
<td>Single, lives at a relative’s house</td>
<td>Lower secondary education</td>
<td>10:00-21:00, six days/week</td>
<td>0 0</td>
<td>Walking</td>
<td>30 mins</td>
<td>0+ taxis sometime</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Cuauhtemoc</td>
<td>23</td>
<td>Single, lives in shared accommodation</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>8:30 hours</td>
<td>1,296</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Iztapalapa</td>
<td>30</td>
<td>Single, lives at parent’s house</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>1:10 hours</td>
<td>480</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Venustiano Carranza</td>
<td>26</td>
<td>Single, lives at parent’s house</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>6:30 hours</td>
<td>192</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Iztapalapa</td>
<td>21</td>
<td>Single, lives at parent’s house</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>9:30 hours</td>
<td>528</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Naucalpan</td>
<td>57</td>
<td>Not married, lives with her son (&gt;12 years old)</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>1:30 hours</td>
<td>2,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Miguel Hidalgo</td>
<td>25</td>
<td>Single, lives at parent’s house</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>3 hours</td>
<td>1,200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Cuauhtemoc</td>
<td>30</td>
<td>Single, lives at parent’s house</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>9 hours</td>
<td>856</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Coyacán</td>
<td>26</td>
<td>Single, lives at parent’s house</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>4 hours</td>
<td>671</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Cuauhtemoc</td>
<td>24</td>
<td>Single, lives at parent’s house</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>3 hours</td>
<td>856</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Iztapalapa</td>
<td>66</td>
<td>Single, lives at parent’s house</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>3 hours</td>
<td>560</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Iztapalapa</td>
<td>34</td>
<td>Single, lives at parent’s house</td>
<td>Lower secondary education</td>
<td>9:30-19:00 M-F+ 9:30-15:00 S</td>
<td>0 0</td>
<td>Public transport</td>
<td>3 hours</td>
<td>856</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Gustavo A. Madero</td>
<td>37</td>
<td>Divorced, lives with her kids</td>
<td>Lower secondary education</td>
<td>11-21 h, six days/week</td>
<td>1 1</td>
<td>Car, driver</td>
<td>12 and 2:30</td>
<td>1,600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Cuauhtemoc</td>
<td>37</td>
<td>Single, shares house with a friend</td>
<td>Lower secondary education</td>
<td>8-17 h, six days/week</td>
<td>1 1</td>
<td>Car, driver</td>
<td>20 or 40 mins</td>
<td>800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Benito Juárez</td>
<td>31</td>
<td>Married, with one kid (2 years old)</td>
<td>Lower secondary education</td>
<td>8-17 h, six days/week</td>
<td>1 1</td>
<td>Car, driver</td>
<td>5 hours</td>
<td>1,200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Cuauhtemoc</td>
<td>36</td>
<td>Married, with one kid (4 years old)</td>
<td>Lower secondary education</td>
<td>8-17 h, six days/week</td>
<td>1 1</td>
<td>Car, driver</td>
<td>6 hours</td>
<td>1,200</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

1 US dollar is equal to 18.55 Mexican pesos
Interviewees were asked about the different transport systems in the Metropolitan area, how the used them; and to discuss the changes they have perceived and other problems related to public and private transport. They were always allowed to expand on the topics they felt like. In addition to the interview, a small survey was given to each participant in order to collect other socio-economic information about them. Table 1 provides the main information.

WHERE DO WE STAND?: ANALYSIS OF MAIN TOPICS
The information provided by the interviewees was extensive. The main ideas are presented in the following sections.

Insecurity as a driver of mobility patterns
Insecurity is a common issue between different income classes but it is especially acute with women and girls. It defines activities and travel patterns, for example, for buying and using a car, walking, taking a taxi, and using public transport.

“I do not take a taxi if I am by myself, it’s too risky!”

The use of taxis is not always the safest option for women, as in Mexico exists the so-called “taxis pirata”, which are fake taxis. Cars with false plates or even without them, which are the same color as taxis and provide the same service are sometimes not easy to recognize from the formal ones.

“My daughter was almost raped by a taxi driver”.

Moreover, women who had used the UBER service (mainly medium to medium-high income) were very happy with it and those who have tested it, agreed that it was a better alternative to the normal taxi which they could stop on the street. They agreed that insecurity problems related to taxis were over as the drivers are identified by the system and provided a better service. However, it must be kept in mind that not everyone has a credit card in Mexico, and only 14.3% of women have one, without controlling for income level. Therefore, for medium to low-income working women this solution is very restricted.

“I worry that robberies take place when I’m in the transport system.”

“I take shared taxis. They are more convenient and I feel safer with their service, especially at night.”

In general, public transport presents a high risk of sexual harassment for women and girls. Apart from sexual assaults, robberies and pick-pocketing are quite typical on public transport. The level of saturation of the transport system facilitates these activities.

Civic mindedness
Using different sources, the UN Habitat (14) reports that in Mexico City, 9 out of 10 women have experienced a type of gender-based violence in their lifetime and that 65% of women have experienced it using public transport.

As a solution to prevent women from harassment, in 2002 the metro line started using the first two metro cars for women only and new pink, women-only buses were implemented. Later even some pink taxis appeared to reduce gender violence. However, the metro and bus programs were evaluated and it was found that the level of harassment had not decreased (36). In 2009 it was decided that it was necessary to complement this strategy with sexual violence awareness campaigns, monitoring and assistance within the public transport systems. “Pink” transport should be maintained as part of a wider visibility and educational campaign, as it cannot reach the needs of all the female transport users; in fact, pink transport covers the needs of 28,000 female users, whereas in Mexico City, more than 1 million women use public transport every day (14).

There is a huge debate about whether this policy really helps to reduce these activities or on the contrary increases and normalizes gender differences. For many researchers and policy makers this situation will only be improved when traditional attitudes towards women are vanished through efficient education and awareness campaigns (36; 14). Interviewees had different visions on this topic, some of them agreed while some others disagreed about the division of males and females on public transport.

“I don’t think that separating men and women (in the metro lines or BRT) is a good policy, sometimes women are even worse than men. Even women sometimes do not respect designated seats for the disabled!”

“I do not like the separation between men and women. It’s the easy solution and does not contribute to work out the real problem” (Middle class woman)

**Perception of the different public transport systems**

It was also highlighted that public transport is not enough to cover population needs and that maintenance in the different transport systems is necessary, as many of them are getting older and hence the provided service is of bad quality.

“On my way back sometimes I have to wait for more than half an hour to get into the Metrobus (BRT)”

“Sometimes I leave my job at 8pm and at 9pm I am still at the Metrobus station (BRT line) trying to get to the next bus. It is overcrowded”.

“I had the idea that the Metrobus (BRT) would have improved the public transport system but it is no longer the case, even if it is the most expensive transport mode”.

During rush hours, the Metrobus is extremely overcrowded. The lack of an efficient and professional monitorization system along with higher maintenance costs have reduced its quality. If there are certain rules on the number of buses that should be running and the characteristics of
them depending on days/hours, these are not being fulfilled. On the other hand, the system is penalized by a lack of traffic signal priority, immersed in the traffic almost like the rest of the vehicles.

The Metro system also receives the same comments. It is totally overcrowded during rush hours and sometimes the service is not of good quality. Many delays in the service occur due to maintenance problems.

However, according to the interviewees, the worst public transport system is the minibus ("Microbus"). They agree that the lack of professionalization of drivers, the way they drive, competing for passengers, and the age of buses, among other problems, make them a risk.

The trolleybus, which has operated in Mexico City for many decades, electric and environmentally friendly, has suffered from continuous dismantling. It is the cheapest transport mode in the City, with separated lanes. It is a public system owned and managed by the Mexico City government. In many cases, this dismantling has favored other transport modes like the BRT.

"Where I live they are planning to take out the trolleybuses to put in a new BRT line. It works just fine, and there should not be a need to change it”.

A lack of traffic education culture
When carrying out the interviews I realized that the question, “do you have a driving license?” did not really imply if they drive or not. In fact, some of them admitted that even without a driving license they would occasionally drive a relative’s car. Only 33% of the interviewees had a driving license but around 55% had at least some knowledge about driving.

Likewise, when participants were asked how they learned to drive, most of them answered that her father or another relative taught her. There was only one case (from the 55% that had some knowledge) in which the participant said that she had taken lessons at a driving school.

This point is absolutely intertwined with the following subsections.

Careful! A new trendy mode on the streets: Cycling
A new bike sharing system was recently implemented. Even if it is very popular, its use is limited to middle and upper classes. There is traditionally a lack of cycling culture, especially for older women. Even if they wanted to make use of the system they would not be able to, because they need a credit card to subscribe and only a limited percentage of the population has one.

There are also a couple of associations that lend bicycles for a couple of hours without the need of a credit card, especially on weekends or Sundays when some streets are closed to traffic.

Apart from these sharing systems, cycling has become more and more popular, especially among young people in the area of this study. They have also bought new bikes to ease their commute. In total, many cyclists are involved with people conducting risky driving behavior.

There is no obligation to know the driving code (even if there is a written question asking if one has read the code, when registering for the eco-bici sharing system). Additionally, roads in the City have been planned for cars, and in most cases, cyclists need to share the road with them.
In the case of women in this study, only two of the women use a bicycle everyday: one uses it to commute (24 years old) and another one (50 years old) uses it to cover the first stage of her trip (to get to the bus stop).

“The bicycle is amazing; it is a good solution to overcrowded public transport. However it is really risky as there is no traffic education culture. That goes for car drivers, but also for cyclists” (Female cyclist)

“Cyclists are totally crazy; they drive with no precaution even in the wrong sense!” (Middle class woman)

“When I drive my car, I get scared by cyclists, who drive totally crazy (Middle class woman)“.

**Pedestrians: The fragile pillar of sustainable transport**

As presented by Híjar et al. in 2003 (37), pedestrian injury rates in Mexico City caused by motor vehicles were the main cause of accidental death in Mexico City, with more than 50% of all deaths recorded as motor vehicle traffic accidents. It is still the main cause of death for children between 5-14 years old and the second for young people between 15-29 years old (14). This is a result of the urban design, where cars have the priority over other modes, including the number of cars on the streets but, very importantly, due to the lack of traffic education culture.

“Car drivers do not respect pedestrians or pedestrian crossings, it is always dangerous.”

“Pedestrians are the ones that need to give priority to the cars and then, when they are all gone, cross the street really quickly, because another car might appear from I-don’t-know-where.”

Pedestrians share their space with street vendors, parking places and now with bicycles (and even motorcycles that are trying to avoid traffic jams).

“Bicycles are also a risk to pedestrians!”

The state of pavement of the streets and lighting is also a common topic that arose during the discussions. Regarding the state of pavement, where it is common to see holes, and cracks, and where very often manholes’ covers are missing, limits the joy of walking. This is in line with Híjar et al. (37), who state that policies to improve pedestrian safety have been limited to the installation of pedestrian bridges, supposing that everyone (even elderly, disabled and people with baby strollers) are able to use them. Furthermore, pedestrian bridges are often considered unsafe by women, because they are deserted places that are not well illuminated, and have only two exits which may limit their escape from risks. It is in fact commonly recommended to not use bridge pedestrian crossings if you are a woman on your own.
The lack of adequate public lighting on the streets decreases the sense of security for pedestrians. The interviews showed that women felt unsecure when crossing parks or areas not well illuminated.

“I do not feel safe when walking alone at night. Streets might be deserted and not well illuminated. I was already robbed once”.

**Job Opportunities**

As it was previously mentioned, the monocentric economic pattern of the Metropolis results in a lot of people commuting everyday to central areas for their jobs:

“Unfortunately where I live (Estado de México) there are not many job opportunities. That’s why I have to come here to work”.

“I have never found a job in the place I live, I have always worked in the central area of Mexico City”.

This situation has important implications regarding transport costs and time poverty, as it is discussed in the following subsections.

**Transport Costs**

In Mexico City there is no tariff integration, then, public transport users need to pay for every single transport mode they use. For lower income women, transport costs may be quite relevant, but for higher income women, the cost of buying/maintaining a car also implies a lot of additional economic resources.

“I try to walk in the mornings to the station, instead of paying for the “Microbus” that would take me to the bus stop. I do it to save some money and especially when my husband can escort me to the bus stop, to avoid assaults”.

**Time poverty**

This is a common issue between middle and low income women. For middle to middle-high class women interviewed, it means the time they need to spend in their cars for an activity, whereas for low income women, it is related to the time they need to spend in public transportation, which they could devote to other activities.

“It takes me 1.5 to 2 hours a day from home to my workplace in the morning and 2 hours on my way back (working six days per week). I take a bus (long distance bus with discrete stops) and then the BRT line”. In her case, around 18% of her wage is used for taking public transport.

Here, family bounds play an important role, they help to carry out other activities that otherwise would be impossible to carry out due to time constraints: shopping, picking up the kids from school or taking care of them later on.
CONCLUDING REMARKS AND DISCUSSION

This study identifies two main dimensions of results. One has a less gender-oriented perspective and is more related to the population needs in the Metropolitan area. The second corresponds to more gendered aspects of transport. These two issues will be discussed in the following paragraphs.

First, the government should bear in mind that better public transport implies public investment and participation in any transport project. For years, Minibuses have filled this gap, but the service they provide is of really poor quality. This also implies that it does not make sense to dismantle –or at least not support- a system that has proved to work for decades using prioritized lanes, and with so little environmental impact, as the trolleybus is. The risk is that in the coming years, people will think about it as it is nowadays done with the different tramways that were taken out of the cities around the world. Hence, the revival of this system makes more sense in order to improve the public transport system in Mexico.

It is necessary to take back the control of land use. Policies that seek polycentricity, that limit unordered and chaotic urban expansion, that control low density urban development and that seek mixed land use must be prioritized.

On the other hand, it is necessary to promote policies that foster the use of alternative modes to the car. Moderation of traffic, like 30 km/h zones discourage the use of cars, promotes other transport modes, while reducing noise and pollution. Increasing social acceptability of these measures through campaigns could improve results.

Moreover, safety is an issue that needs to be tackled with better traffic education culture. For decades, everyone could get a driver’s license in Mexico without a driver’s proficiency test. Most of the people driving on the streets have not taken driving courses. No one knows the driver’s code. Signals, priorities, and so on, are concepts understood differently by drivers. This issue makes traffic worse, causes stress for drivers, causes accidents and increases pollution. It is time that a policy that tackles this issue is developed. On the other hand, it is normal that cyclists follow the same pattern: driving without really understanding how to coexist with other modes. There is also an extension of these problems with transport providers, like bus or taxi drivers, especially for minibuses and the concept of “man-bus”. They have not gone through a specific training in order to become a bus/taxi driver. In fact, the only ones that have to pass a test are the ones that want to drive as Uber.

Regarding gender issues, there are multiple topics that impact women; however, this impact differs between low-medium and medium-high income segments. The differences in income and educational level forge their opinion regarding public transportation.

For example, insecurity is a common issue between these two groups. It defines activities and travel patterns (buying and using a car, walking, taking a taxi, and so on). Apart from being robbed or suffer from pick pocketing in public transport, they are aware that sexual harassment, especially for younger women is a continuous practice in any of the systems. For those women with higher incomes, they may just decide to avoid using public transport and instead use their cars. For those with less accessibility choices, and without a car, they need to introduce in their life other practices, like taking other routes, or not walking alone. Even if these alternatives are not the fastest or the most convenient according to optimization theories. Moreover, gender differentiated cars have not solved this problem. A reflection in this topic is hence necessary.
Transport costs for low and lower middle income working women are high. The lack of integration penalizes their choices although they are also constrained by safety problems.

Time poverty is a common issue between women segments although their impact is different. As they are the ones that tend to take care of children, or escorting or transporting a child. Therefore, their economic opportunities may be more restricted. Moreover, family bonds lessen the extent of this issue. Parents, relatives and even friends and neighbors help in a wide range of activities, from shopping to taking care of the kids.

Upper middle income women may use public transport during non-peak hours (BRT). They might also use the bike sharing system (too expensive for lower income women) and Uber services. They also try to drive during non-peak hours.

This paper observes that transport infrastructure planning must clearly state to whom it is targeted and how it would benefit typically excluded population sectors. Until now, many of the new transport infrastructures have benefited the segments that own a car more and with higher income than lower income. For the case of this study it is clear that the gender dimension must be recognized from the early planning phase of a transport infrastructure project and a gender base analysis and monitoring must be implemented. International institutions, which provide loans and assistance for transport projects, should ensure that these issues are taken into account.

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