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**Towards an understanding of single mothers' urban mobility. A comparative analysis of parents' travel patterns in the Paris region.**

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## INTRODUCTION

A body of work documents the constant growth of one-parent households in urban areas (1, 2). In the Paris region, the latest population data indicates that 23.5% of households with children under the age of 18 are headed by a single parent (3), 84.15% of which are single-mothers. These mothers face specific concerns due to their status. They are twice as affected by poverty as mother in dual-parent households (2). From a daily life perspective, many studies have demonstrated that single mothers struggle to juggle family and professional activities (4). They must draw a salary to maintain the household and carry out domestic work, without the help of a partner.

Parents –and people in general– activities program is constrained by social rhythms, such as work or school schedules (5). Many of the daily activities require travel to link different spaces: each trip is made to carry out an activity in a specific time and place. That is why authors claim daily mobility is a space-time indicator of daily activities (6). Single mothers being a growing category of people with particular concerns, I will analyze how mobility reveal specificities and constraints of these mothers' daily life in the Paris region. The number of trips per purpose or the time spent traveling could be indicators of everyday life's efforts and possibilities (7).

In dual-parent households, mothers spend twice as much time as fathers doing domestic chores (8), and the latter have higher rates of employment and full-time activity (9). Hypothetically these “gender gaps” should disappear among single parents because they do not have a partner with whom to “share” domestic work, and most are employed. However single mothers spend more time in domestic work than single fathers (8), and the proportion of single fathers with full-time paid employment is 16.7% higher than that of single mothers (3). It is therefore interesting to compare the mobility patterns of single mothers and those of single parents, and also with those of parents who are in a relationship.

Even if most of the research about parents' daily mobility considers them as an aggregate or study only dual-parent households, other researchers have already focused on the specificity of single parents. In 1989, several papers concluded that one-parent households have significantly different travel patterns from dual-parent households (10), and found that single mothers' mobility is impacted by all the responsibilities they shoulder: they make more trips, trip-link more often, travel further than comparable married women and are more constrained by their children than married parents of either sex (11, 12). Even if this work shows the importance of family charges, it mostly uses data on commuting, leaving aside other “domestic” purposes. However, using the US National Household Transport Survey, Rosenbloom explained that single mothers made a high percentage of trips to serve passengers and for shopping, especially mothers with children under the age of 6 (13).

The most recent work about single parents and transportation is presented in a context of “social exclusion” (14, 15). Some shown the importance of transport facilities to ensure accessibility and avoid exclusion (16). Others found that these parents have a more constrained activity program than other parents, particularly in low-income households (14). This literature introduced the term of “social exclusion”, using daily mobility as a possible indicator of social inequalities. However, none adopts a gendered perspective, i.e. a theoretical reflection about mobility and “gender inequalities”.

This paper is based on the first results of an ongoing PhD research in which I seek to understand the role of mobility in gender inequalities between parents, combining qualitative (semi-directive interviews) and quantitative methods. Here I explore parents' travel patterns to understand the specificities of single mothers' daily life. I use a mobility survey of the Paris region, where single parents' mobility has not been studied, and where little research focuses on gender differences in mobility (17, 18, 19).

## METHODOLOGY

The Paris region is one of the most populated urban regions in Europe: 12 million inhabitants live in an area of 12,012 km<sup>2</sup>. The population distribution and density is divergent, with a dense and populated center, large but less populated suburbs, and rural outskirts. The Paris region has a well-developed transit network with a metro in the inner city and the nearest outskirts, a suburban rail system, and large bus network.

This quantitative research is based on data from the *Enquête Globale Transport 2010* (EGT-2010), the latest Parisian household travel survey, conducted by the regional mobility service. EGT-2010 contains information about the household (housing, place of residence, incomes and transport equipment) and about all its members (age, sex, occupation information and the possession transport facilities as driving license). It includes, for each person aged 5 years and over, detailed information about all the trips of the day before the survey (purpose, duration, hours and transport mode). The results comprise information for 35,175 individuals and 124,262 trips.

EGT-2010 does not contain explicit information about the household structure and the presence of children. However, for each individual there is information about the relationship (descendant, partner, ascendant, other) with the household head. That allows me to identify the parents and define two categories: single/living with a partner. This research is limited to the parents of children under 18, which in France is the age of legal majority and the age required for a driving license. I exclude a minority of complex households with children. My sample contains 42,733 trips and 9,303 individuals. The sample of single fathers is minute –165 individuals and 802 trips– due to their small number, the data are to be handled carefully.

Data analysis was conducted with descriptive statistics, mainly using central tendencies –mean– and cross tabulations. To answer my research questions, I use data about the purpose of the trip, which I cross-referenced with sex and the fact of living with a partner. I focused on the purposes that constrain parents' daily life: professional and care activities. The latter is not a predefined category in the survey; I have created it grouping shopping, drop off/pick up and other care trips (administrative tasks, take care of someone, parents meetings...) (20).

## FINDINGS

### *Mobility patterns differences between mothers and fathers*

In the Paris region, almost all the parents, with a weak difference between sexes and family status, made at least a trip the day before the survey. They had at least one out-of-home activity. However, the results differ among parents' groups if trip purposes are considered. Indeed, the various indicators show uniform results for parents in dual-parent households (Table 1, Figure 1).

Regarding gender differences, as expected, results reveal higher involvement of mothers in care activities –56% of their trips versus 38% for fathers–; and higher involvement of fathers in professional paid activities –43% of their trips versus 26% for mothers. These results are related to employment and full-time activity rates, which present similar differences.

**TABLE 1. Trips of parents per purpose**

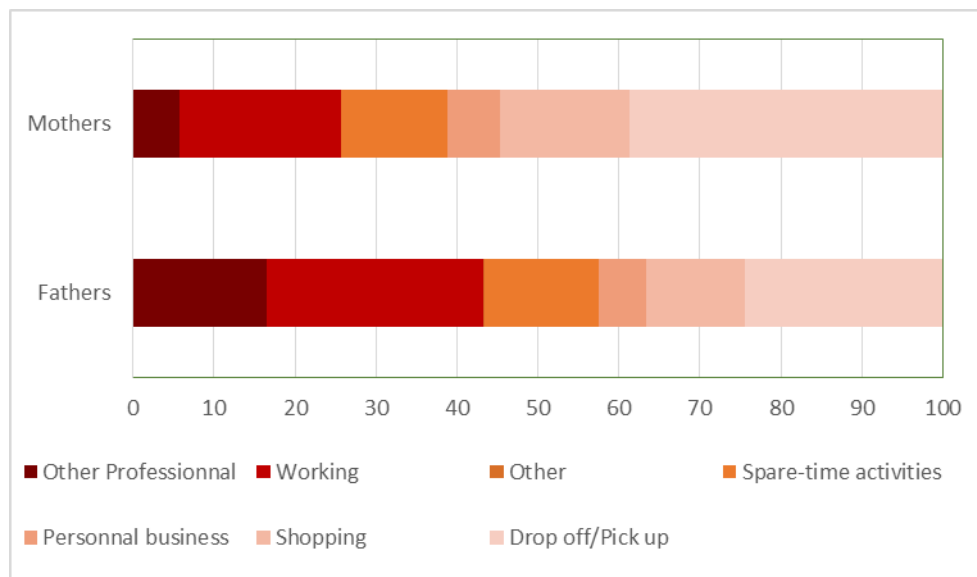
Purpose	Drop off /pick up		Shopping		Care activities		Professional	
Indicator	%*	Mean**	%*	Mean**	%*	Mean**	%*	Mean**
<b>Mothers in couple</b>	54.78	1.15	53.65	0.48	70.00	1.73	52.33	0.82
<b>Fathers in couple</b>	40.96	0.69	46.35	0.34	56.61	1.13	73.42	1.31
<b>Single Mothers</b>	46.49	0.95	34.36	0.45	69.41	1.60	59.71	0.96
<b>Single Fathers</b>	45.49	0.82	36.46	0.48	68.51	1.41	72.11	1.21

Source: EGT 2010-STIF-OMNIL-DRIEA, Gonçál Cerdà Beneito.

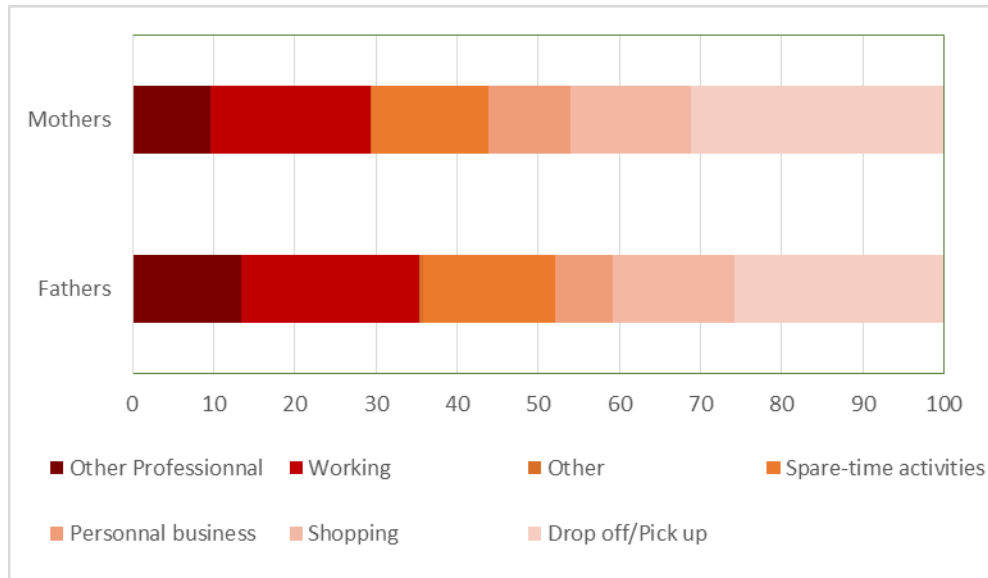
\* Percentage of parents who have made at least a trip for the purpose the day before the survey.

\*\* Average number of trips per purpose.

In the case of one-parent families, the gender disparities are narrower (Figure 2). The difference in the mean of care trips is small: average single fathers made 1.41 trips and average single mothers 1.60. In fact, the percentage of single fathers' shopping trips is slightly higher than for single mothers. Mobility indicators for single parents are between those of mothers and fathers living with a partner. Single mothers made more professional trips and less care trips, and single fathers travelled more for care activities and less for professional reasons compared with their dual-parent household counterparts. The differences between sexes persist among single parents. Even if single mothers are almost as likely as mothers in couple to travel for care purposes, they are more likely to make trips with a work purpose.



**FIGURE 1. Parents' in couple trips per purpose**



**FIGURE 2. Single parents' trips per purpose**

### *Use of time and time of the activities*

A time-use approach can prove useful for a deeper understanding single mothers' daily mobility, compared to other parents. This approach is used in research that has examined the gender gap in domestic and care work using the Use of Time Surveys (8). With the EGT-2010 data, it is possible to calculate the travel time-budgets (TTB), which give the time spent on the trip between two places. The average results of the TTB (Table 2) confirm what has been observed with the previous indicators. Furthermore, they show that, despite the tightening of mobility patterns among single-parents, two gendered tendencies persist. On the one hand, all mothers, single or not, spend almost the same amount of time on travelling for care activities as they do on professional trips. On the other hand, whether single or in couple, fathers spend more time on professional trips than on care activities ones –27 minutes more for fathers in couple, and 14 minutes more for single fathers. In all cases, the TTB for paid professional activities is higher than that for care, because often trips to the workplace are longer –in time and space– and the domestic tasks out-of-home are done in the surroundings of the home. Overall, these differences are almost imperceptible for mothers.

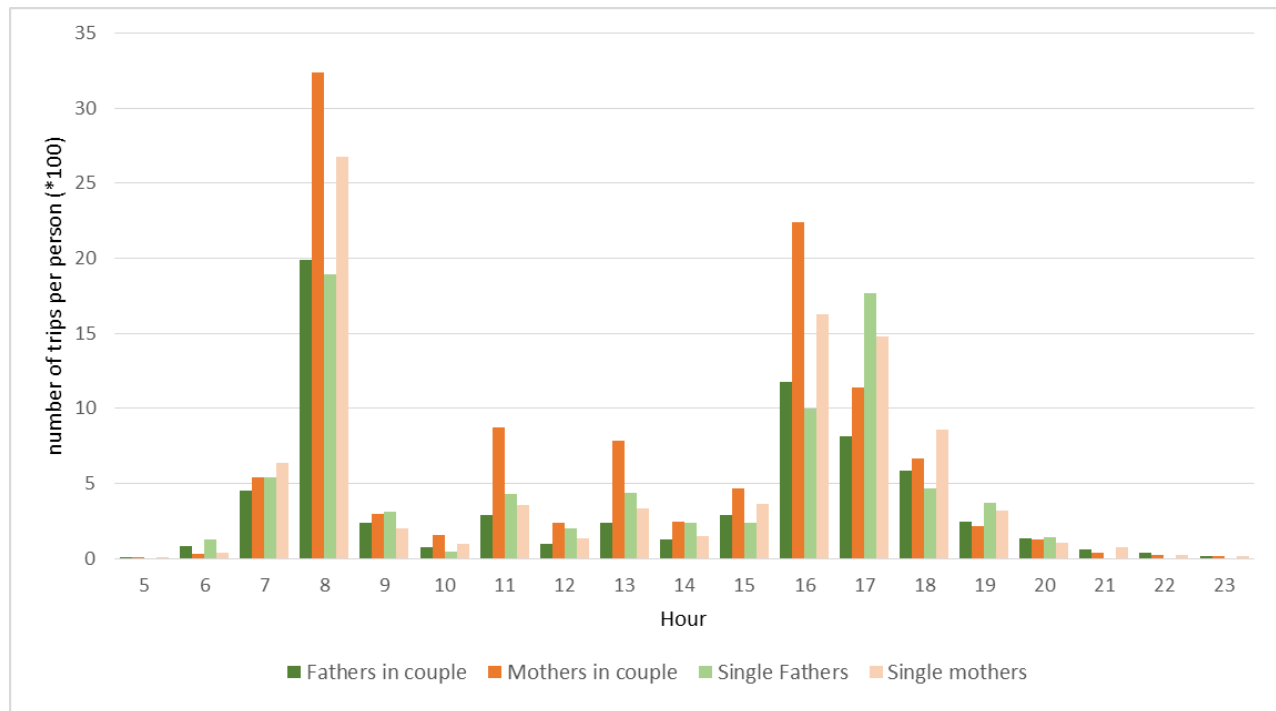
**TABLE 2. Average daily travel time-budget per purpose (minutes)**

Purpose	Drop off/pick up	Shopping	Care activities	Professional	All
<b>Mothers in couple</b>	14'23"	7'28"	23'53"	24'28"	94'08"
<b>Fathers in couple</b>	10'00"	5'37"	17'41"	44'41"	120'59"
<b>Single mothers</b>	14'55"	7'32"	28'10"	28'45"	113'49"
<b>Single fathers</b>	14'19"	6'33"	23'26"	37'06"	118'53"

Source: EGT 2010-STIF-OMNIL-DRIEA, Gonçal Cerdà Beneito.

In addition, TTB results show mobility “specializations” among parents’ groups. Fathers in couple have the biggest TTB: 27 minutes more than mothers in couple, 7 minutes more than single mothers and 2 minutes more than single fathers. They are also the ones who spend the most time on professional trips: almost 8 minutes more than single fathers and 40 minutes more than mothers

in couple. Single mothers are the ones who spend most time in the care trips: 4 minutes more than mothers in couple and single fathers, and 10 minutes more than fathers in couple. This could be a sign of single mothers' daily complexity related to domestic and familiar constraints.



**FIGURE 3. Parents' drop off/pick up trips by hour**

Related to the use of time, it is interesting to consider the time the trip starts. The trips of each group of parents are grouped by hour to show the moment of the day when parents mainly travel. I chose to focus on drop off/pick up trips, which are the main “domestic purpose” among parents and have given clear results in previous research (19). At almost all times, and particularly at peak hours –school beginning and end, and lunchtime– mothers in couple did a proportionally higher number of drop off/pick up trips. The differences among single mothers and fathers are less clear than for the other parents. However, single mothers did proportionally more drop off/pick up trips than fathers in the school beginning and end time. It is also interesting to note the differences between mothers. While the trips of the mothers living with a partner were more frequent in the peak hours, single mothers' were more dispersed, particularly in the evening. That could be due to the fact that single mothers leave children at school later, in “leisure activities” programs.

## CONCLUSIONS

Exploitation of the latest household travel survey of the Paris region confirms relevant gender differences among parents living with a partner, revealing an unequal share of domestic work. The disparities are narrower among single parents. However, results corroborate what has been previously observed in other contexts (13): single mothers have specific travel patterns. They travel more than fathers for care activities. Furthermore, their TTB for these activities is the highest among the categories of parents. Even if the percentage of full time paid work is similar for single mothers and mothers with a partner, the former travel more for work and spend more time on

professional trips. Single mothers' daily life is conditioned by family constraints and professional activities, which tends to complicate their mobility patterns.

There are however, many limitations in the analysis for the understanding of single mothers' daily life and the role mobility plays. I have only considered sex and conjugal status, but previous research asserts that "low income single mothers, and those from ethnic minorities, may face additional problems" (13). It could be also interesting to explore the influence of children's age and number. Furthermore, even if I concentrated on an urban area, I have not explored possible differences between parents living in the dense center areas and parents living on the outskirts, as shown previously for other groups (14).

Other limitations are related to the survey and quantitative methods. I could not analyze the way single parents manage their daily life and their mobility decisions. How do single mothers handle various tasks? Do they see travel time as a constraint? If single fathers are in the same family situation, why do they have fewer drop off/pick up trips? Are they receiving help from others (friend or family)? On the next steps of my PhD research, I will try to answer these questions using qualitative methods.

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